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INDIAN ACADEMY OF SCIENCES

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N Padmaja
R Pushpavathi
P Rajesh
M Srimathi

Foreword

While the Year Book of the Academy gives short and concise information about each Fellow and the Honorary Fellow, it has been felt for quite a while that more information on their career and scientific work would be useful. We did bring out such a Directory containing such information during the Diamond Jubilee Year of the Academy in 1994; it is now time for us during the Platinum Jubilee Year to update this and present a new version of this Directory inclusive of all information that has been possible for us to obtain.

We are grateful for the assistance received from many persons both within the Fellowship and outside, in collecting information on many of our past Fellows. Yet it has not been possible to obtain the information on every Fellow and particularly past Fellows. Thus even the Directory presented here is still incomplete. We would be grateful if Fellows can suggest the names of colleagues, students or relatives of past Fellows who would be able to help us.

We would also be grateful if you can notify the Academy office of any errors that might have crept in the Directory. We would ensure that appropriate corrections are made in the next edition.

D. Balasubramanian
President 2007–2009

Abhyankar, Krishna Damodar*

Elected: 1974
Specialization: Astronomy; Spectroscopy
Date and Place of Birth: 21 June 1928; Indore, Madhya Pradesh
Parents: Damodar Keshav Abhyankar and Sarojabai
Spouse: Shailaja
Last address: Akashaganga, 5-76, Vivekanandanagar, Habsiguda, Street No. 8/26 Hyderabad 500 007, India
***Deceased:** 8 November 2007

Education: Agra Univ.: BSc 49, MSc 51; Univ. of California: PhD 59.

Career: Holkar College, Indore: Jr Lecturer 51–52; Kodaikanal Observatory: Sr Res. Scholar 52–54; Univ. of California, Berkeley: Lick Observatory Fellow 55–58, Jr Res. Astronomer 58–59; Osmania Univ., Hyderabad, Dept of Astronomy: Reader 60–64, Prof. 64–88; Emer. Prof. 89–91; Nizamiah and Rangapur Observatories, Hyderabad, Dept of Astronomy: Head, Dir 61–63, 73–81, 86–88; NASA, Jet Propulsion Lab., Pasadena, California: Sr Postdoc Resident Res. Assoc. 67–70; TIFR, Bombay and BARC, Srinagar: Vis. Prof. 82 & 83, Fellow 55–58, Jr Res. Astronomer 58–59.

Scientific Work: Made photometric, spectroscopic, spectrophotometric and period studies of about three dozen eclipsing and variable stars with the view to determine their orbital parameters, absolute dimensions and evolutionary status; solved several problems in radiative transfer in moving, inhomogeneous and imperfectly scattering semi-infinite and finite atmospheres; calculated intensity and polarization line profiles in planetary and terrestrial atmospheres; made MK morphological study of Am stars which led to the discovery of a transitional class between Ap and Am stars, as well as classification of the Am stars into subgroups; computed the orbits of small particles near the Lagrangian points L_2 and L_3 in the restricted problem of three bodies; developed FTS method for measuring the Stokes parameters as a function of wavelength in the optical region; studied the sunspots and the solar corona.

Important Publications: **(1)** *Astrophysics – stars and galaxies* (1992) Tata McGraw-Hill, New Delhi. **(2)** *Astrophysics of the solar system* (2002) Orient Longmans. **(3)** *Pre-Siddhanta Indian astronomy.* **(4)** *An overview of basic theoretical physics.*

Memberships: Fellow: Intl Astronomical Union; Royal Astronomical Soc.; Astronomical Soc. of the Pacific; INSA 89; Andhra Pradesh Acad. of Sci.; Maharashtra Acad. of Sci.

Abhyankar, Shreeram Shankar

Elected: 1988
Position: Prof., Purdue Univ., USA
Specialization: Algebra; Algebraic Geometry
Date and Place of Birth: 22 July 1930; Ujjain, Madhya Pradesh
Parents: Shankar Keshav Abhyankar and Uma Tamhankar
Spouse and Children: Yvonne; one *s*, one *d*
Address: Department of Mathematics, Purdue University, West Lafayette, Indiana 47907, USA
Tel. (+1-765) 494 1933 (O), (+1-765) 743 2440 (R)
email: ram@cs.purdue.edu

Education: Bombay Univ.: BSc 51; Harvard Univ., USA: AM 52, PhD 54.

Career: Alfred P Sloan Foundation: Res. Fellow 58–60; Purdue Univ., USA: Prof. 63–67; Marshall Distinguished Prof. of Maths 67; Univ. of Poona, Pune, Dept of Mathematics: Vis. Prof. 78; Prof. of Industrial Engg 87, Prof. of Computer Sci. 88.

Scientific Work: Proved the resolution of singularities for surfaces in positive characteristics; in the case of three folds also. Worked on the fundamental group of algebraic varieties and a beautiful resolution known as epimorphism theorem.

Memberships: Fellow: INSA 87 • Member: American Math. Soc.; Math. Assn of America; Indian Mathematical Soc.; Maharashtra Acad. of Sci.

Awards & Distinctions: Herbert Newby McCoy Award, Purdue Univ. 73 • Lester R Ford Prize 77 • Chauvenet Award 78 • Medal of Honor, Univ. of Valliadolid, Spain 90.

Abraham, Ayrookuzhiyil*

Elected: 1957
Specialization: Tuber Crops; Cytology and Phylogeny of Pteridophytes
Date and Place of Birth: 25 May 1914, Travancore
Last Address: Ayrookuzhiyil, Avittom Road, Kannamoola, Trivandrum 695 011, India
***Deceased:** 20 May 1994

Education: Madras Univ.: BSc 33, MA 35, MSc 37; Cornell Univ., USA: PhD 48.

Career: Madras Christian College, Madras, Dept of Botany: Resident Tutor and Lecturer 37–40; College of Agri., Poona: Res. Asst 40–42; Central Res. Inst., Travancore Univ.: Economic Botanist 42–45, Plant Geneticist 48; Univ.

College, Trivandrum, Dept of Botany: Prof. and Head 49–62; Kerala Univ., Botany Dept: Head and Prof 62–72, FAO/UN, Regional Office for Africa: Agri. Res. Org. Offr 72–76; Tropical Botanic Garden & Res. Inst.: Dir 79–83

Scientific Work: Formulated a plan to save the declining genetic wealth of Western Ghats by setting up a research garden. Launched a campaign to educate the bureaucrats and their masters which went on for thirty years before sanction was obtained for the establishment of the Tropical Botanic Garden. Evolved UR-19, a rice strain and introduced the high yielding M-4 Cassava variety from Malaya which were vital contributions to the agricultural sector. Organized and executed research on breeding and improvement of tuber crops of South India. Organized and developed school of research on cytology and phylogeny of pteridophytes.

Memberships: Fellow: USA Genetical Soc.; Indian Soc. of Genetics and Plant Breeding • Member: Agri. Universities Review Committee for GOI; Governing Body IARI; Central Advisory Board of Biology; Forest Res. Inst. Advisory Board • Chmn: Kerala State Committee on Sci. and Technol.

Awards & Distinctions: Sri Chitra Prize • Fyson Prize.

Abraham, Kadavil Poulose

Elected: 1975
Specialization: Extractive Metallurgy
Date and Place of Birth: 28 August 1920; Trichur, Kerala
Parents: K A Poulose and Mary
Spouse and Children: Sarla; two *s*
Address: 2, Walker Lane, Richmond Town, Bangalore 560 025, India
Tel. (080) 2221 1556 (R), Mobile: 96320 29101

Education: Univ. of Lucknow: MSc 44; Univ. of London: PhD 59, DIC.

Career: Maharaja's College, Ernakulam, Kerala: Lecturer 45–47; Jaffna College, Sri Lanka: Lecturer 47–56; Nuffield Res. Group, Imperial College, London: Res. Assoc. 56–59; Postdoc 59–60; IISc, Bangalore, Dept of Metallurgy: Asst Prof. 60–69, Prof. 69–81, Chmn 72–77, Consultant to ARDB Project on Electroslag Refining 81–84; Royal College of Technol., Sweden: Vis. Prof., 77–78; R&D Centre for Iron and Steel, SAIL, Ranchi & CSIR, RRL, Trivandrum: Consultant 86–90; Aluminium Association of India, Bangalore: Tech. Adviser 93–2007.

Scientific Work: Determined high temperature thermodynamic properties of alloy systems and slag systems of interest in iron and steel making. Researched into kinetics of high temperature gas solid reduction processes, and developmental work on electroslag refining of steels and nonferrous metals.

Important Publications: **(1)** *Extraction of non-ferrous metals* (1985) East-West Press. **(2)** Activities of manganese in solid platinum (1960) *Acta Metall.* **8**, 12, 888–890. **(3)** Alkali problem in the blast furnace (1960) *Scandinavian J. Metall.* **4**, 193. **(4)** Activities of MnO in silicate melts (1975) *J. Iron and Steel Inst., London* **196**, 313–317. **(5)** Gibbs energies of formation of intermetallic phases Pt-Mg, Pt-Ca and Pt-Ba (1990) *Met. Trans.* **B21**, 512–527 .

Memberships: Fellow: Electrochemical Soc. of India; INSA 82 • Hon. Member: IIM 2005; Science Advisory Committee, Steel Ministry, New Delhi 85–88.

Awards & Distinctions: Extraction and Processing Science Award, USA 93.

Abrol, Yash Pal

Elected: 1986
Position: Adjunct Prof. & INSA Hon. Sci.
Specialization: Agriculture: Crop Physiology; Climate Variability; Environmental Issues
Date and Place of Birth: 23 December 1935; Lahore, Punjab
Parents: Lal Chand and Daya Wanti Abrol
Spouse and Children: Mridula; two s (Amar, Manav)
Address: 40 SFS Hauz Khas Apartments, Sri Aurobindo Marg, New Delhi 110 016, India
Tel. (011) 2685 8804 (O), (011) 2696 2147 (R), Mobile: 98100 32162
email: ypabrol@vsnl.com; ypabrol@gmail.com

Education: Panjab Univ.: BSc 55; BHU, Varanasi: MSc 57; Univ. of Chicago, USA: PhD 63; Univ. of California, Davis: Postdoc Fellow 63–65.

Career: CSIR: Pool Offr 65–67, Jr Plant Physiologist 67–68, Plant Physiologist 68–76, Sr Plant Physiologist 76–88, Head, Division of Plant Physiology 88–95, CSIR Emeritus Sci. 96–2001, INSA Sr Sci. 2001–06, INSA Hon. Sci. 2006–.

Scientific Work: Provided first evidence that cyanogens are metabolically active rather than inert end products. Worked out the biochemical basis of poor chapati quality of Mexican dwarf wheats as compared to Pbc and K series wheats. Evolved a screening test which was recommended to wheat breeders for selection of wheat strains with low phenolase activity. Elucidated the physiological and biochemical basis of utilization of nitrogenous fertilizers; regulation of nitrate reductase by hormones, light and source of reductant.

Important Publications: **(1)** *Agricultural N use and its environmental implications* (2008) IK International, New Delhi, pp. 552. **(2)** Reactive N in agriculture, environment & health, *Curr. Sci.* **94,** 11, 1375–1477. **(3)** Reactive N in agriculture, industry and environment in India (2008) *IGBP-WCRP-SCOPE Report Series* 3, INSA, New Delhi. **(4)** *Photosynthesis: Photoreaction to plant productivity* (1993) Oxford & IBH Publishing Co., New Delhi/Kluwer Academic Publishers, Dordrecht, pp. 583. **(5)** *Nitrogen in higher plants* (1990) Research Studies Press, UK, pp. 492.

Memberships: Assoc. Member: Sigma Xi USA • Full Member: Sigma Xi USA.

Awards & Distinctions: FAI Award 77 • R D Asana Endowment Fund Award 78 • ICAR National Fellowship Award 78–84 • Sukumar Basu Award 80 • FICCI Award 90 • Vasvik Award 90 • T M Das Memorial Lecture 93 • Platinum Jubilee Lecture, Indian Sc. Cong. 95 • Birbal Sahni Medal 2008.

Acharya, C N*

Elected: 1936
Last Address: Department of Chemistry, Indian Institute of Science, Bangalore 560 012, India
***Deceased**

Education: PhD, AIC; DSc, London Univ.

Career: IISc, Bangalore, Dept of Chemistry.

Scientific Work: One of the leading technocrats during the 30s. Researched on decomposition of cellulosic materials.

Important Publications: **(1)** *Organic manures* (1952) Indian Council Agriculture Research, Research Revision Series, Bulletin 2, New Delhi. **(2)** Furfuraldehyde yield of soil (1937) *Biochem. J.* **31**, 1800–1804.

Acharya, Subrat Kumar

Elected: 2001
Position: Prof. and Head, Department of Gastroenterology, AIIMS, New Delhi
Specialization: Gastroenterology; Hepatology; Liver Diseases
Date and Place of Birth: 1 November 1951; Balasore, Orissa
Parents: P K Acharya and Kadambini
Spouse and Children: Tuhina; two *d* (Pragyan, Prachi)
Address: Department of Gastroenterology
All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India
Tel. (011) 2659 2934 (O), (011) 2658 8460 (R), Mobile: 98683 97200
email: subratacharya@hotmail.com

Education: Bahampur Univ.: MBBS 75; Utkal Univ., SCB Medical College: MD 80; AIIMS, New Delhi: DM 82.

Career: SCB College: Lecturer 83–86; AIIMS, New Delhi: Asst Prof. 86–90, Assoc. Prof. 90–94, Addl Prof. 94–97, Prof. 97, Prof. & Head 2004.

Scientific Work: Described etiology, course, prognostic model of acute liver failure (ALF) in India. In ALF, sepsis kills, because of decreased fibronectin synthesis. Ammonia in ALF causes cerebral edema and high mortality. Proved the ineffectiveness of IV phenytoin which was recommended by textbooks for treating seizures in ALF. Based on his work, the International Association for the Study of Liver recommended new definitions for liver failure. Proved that pregnant ALF patients do not have increased mortality which was the existing concept. Reported occult HBV infection in ALF – new insight in HBV; HEV super-infection in cirrhosis causes decompensation and death. First reported magnitude, genotype and treatment of HCV in India and new HCV RNA quantification method. Sero-epidemiological study on HAV – that HAV vaccination is not cost-effective in India. Described HCC incidence, cost-effectiveness of screening identified high risk group in cirrhosis in India.

Important Publications: **(1)** A 20 year single center experience with acute liver failure during pregnancy: Is the prognosis really worse? (2008) *Hepatology* **48**, 1380–1382; 1577–1585. **(2)** Hepatitis E virus (HEV) infection in patients with cirrhosis is associated with rapid decompensation and death (2007) *J. Hepatology* **46**, 387–94. **(3)** Predictive value of arterial ammonia for complications and outcome in acute liver failure (2006) *Gut* **55**, 98–104. **(4)** Prophylactic phenytoin does not improve cerebral edema (2004) *J. Hepatology* **41**, 89, 152–155. **(5)** Fulminant hepatitis in a tropical population: Clinical course, cause, and early predictors of outcome (1996) *Hepatology* **23**, 1448–1455; 24, 270–271.

Memberships: ISG • INASL; APASL.

Adhya, Samit

Elected: 1999
Position: Sci. G, IICB, Kolkata
Specialization: Molecular Genetics of Parasites; Intracellular RNA Trafficking; DNA Diagnostics
Date of Birth: 29 September 1953
Parents: Santhosh Kumar Auddy and Era
Spouse and Children: Lipika Adhya; one *s*
Address: Indian Institute of Chemical Biology, 4, Raja SC Mullick Road, Kolkata 700 032, India
Tel. (033) 2473 3491 (O), (033) 2280 0123 (R)
email: sadhya@iicb.res.in

Education: Calcutta Univ.: BSc 73; MSc 75; Albert Einstein College of Medicine, New York: PhD 81.

Career: Albert Einstein College of Medicine, New York: Res. Assoc. 81–84; Memorial Sloan Kettering Cancer Center, New York: Res. Assoc. 84–85; IICB, Kolkata: Sci. 85–.

Scientific Work: For the last several years, has been working on basic mechanisms of gene regulation in the protozoal parasite *Leishmania donovani*, the causative agent of kala-azar, as well as on the development of a DNA-based diagnostic procedure for visceral leishmaniasis. Early work involved the demonstration of a translational control mechanism for tubulin synthesis during the life cycle of the parasite. This was followed by the identification of a specific RNA binding protein which interacts with tRNA and is localized to the mitochondrial surface. An *in vitro* system of mitrochondrial RNA import was developed for the first time and various aspects of the import process were studied using this system. Using nuclear DNA targets, the polymerase chain reaction (PCR) technique was exploited to develop a highly sensitive early detection system for *Leishmania* in clinical specimens as well as sandfly vectors.

Important Publications: **(1)** Mitochondrial RNA import in *Leishmania tropica*: Aptamers homologous to multiple tRNA domains that interact cooperatively or antagonistically at the inner membrane (2002) *Mol. Cell. Biol.* **22**, 4372–4382. **(2)** Ping-pong interactions between mitochondrial tRNA import receptors within a multiprotein complex (2003) *Mol. Cell. Biol.* **23**, 5217–5224. **(3)** Allosteric regulation of tRNA import: Interactions between tRNA domains at the inner membrane of *Leishmania* mitochondria (2003) *Nucl. Acids Res.* **31**, 5552–5559. **(4)** Role of superoxide dismutase in survival of *Leishmania* within the macrophage (2003) *Biochem. J.* **369**, 447–452. **(5)** Mitochondrial differentiation in kinetoplastid protozoa: A plethora of RNA controls (2003) *Differentiation* **71**, 549–556.

Memberships: Fellow: INSA 2003.

Adiga, Perdur Radhakantha*

Elected: 1982
Specialization: Endocrine Biochemistry; Reproductive Physiology and Growth Differentiation
Date and Place of Birth: 5 May 1935; Barkur, Karnataka
Parents: Vasudeva Adiga and Padmavathi
Spouse and Children: Bharathi; two *d*
Last address: Biochemistry Department and Centre for Reproductive Biology & Molecular Endocrinology
Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 13 September 2006

Education: Univ. of Kerala: BSc Hons 56, MSc 58; IISc, Bangalore: PhD 63.

Career: Univ. of Hawaii, Honolulu, Dept of Biochem. & Biophys.: Res. Assoc. 63–67; McGill Univ., Canada, Dept of Medicine: Res. Assoc. 67–69; IISc, Bangalore, Dept of Biochem.: Sr Res. Fellow 69–70, Lecturer 70–73, Asst Prof. 73–78, Assoc. Prof. 78–82, Prof. 82–97, CSIR Emeritu Sci. 97–.

Scientific Work: Discovered the phenomenon of specific career proteins mediating transplacental delivery of vitamins like riboflavin, thiamin and biotin during gestation in female mammals, including primates. Elucidated biochemistry, immunotopology as well as hormonal induction and regulation of vitamin carriers, which were found to be also synthesized in testis to become sperm components and are required for vitamin transport through the testis blood barrier to support spermatogenesis. Identified the neurotoxic principle from *Lathyrus sativus* (Kesari dhal). Also worked on enzymatic pathways of polyamine biosynthesis and regulation in plants during embryonic development.

Memberships: Fellow: INSA 84.

Awards & Distinctions: IISc Giri Memorial Award 63 • S S Bhatnagar Prize 80 • Sanjay Gandhi Award for Sc. and Technol. 82 • SBC M Srinivasayya Award 84 • INSA MRN Prasad Memorial Lecture Award 92 • Vice Pres., SBC Indian Soc. for Human Reproduction.

Adimurthi, Adi

Elected: 1996
Position: Prof., TIFR Ctr for Applicable Mathematics
Specialization: Nonlinear Differential Equations
Date and Place of Birth: 18 March 1952; Bangalore, Karnataka
Parents: Adinarayana and Narayanamma
Spouse and Children: Prathibha; two *s* (Karthik, Abishek)
Address: TIFR Centre for Applicable Mathematics, P.B. No. 6503, Sharadanagar, Bangalore 560 065, India
Tel. (080) 6695 3742, (080) 6695 3790/95 (O), (080) 2341 1505 (R)
email: aditi@math.tifrbng.res.in

Education: Bangalore Univ.: BSc 70, MSc 72; Bombay Univ.: PhD 84.

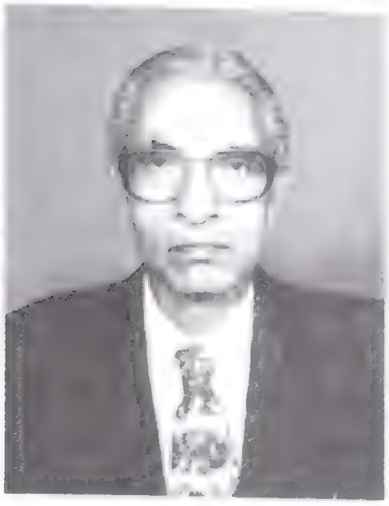
Career: TIFR, Bombay: Res. Asst 72–79, Res. Assoc. 79–83, Fellow 83–90, Reader 90–94, Assoc. Prof. 94–2000, Prof. 2000–2008, Sr Prof. 2009–.

Scientific Work: Complete answer to the question of existence and nonexistence of positive solutions for critical exponent problem in two dimensions and for Neumann problem in higher dimensions; counter example to the conjecture of Lin–Ni in chemotaxis problem; exact estimates for the error term for the Hardy–Sobolev inequalities and generalizations to manifolds; general interphase entropy theory for discontinous conservations laws.

Important Publications: **(1)** Existence of positive solutions of the semilinear Dirichlet problem with critical growth for the n-Laplacian (1990) *Ann. Scuola Norm. Sup. Pisa Cl. Sci.* (4) **17**, 3, 393–413. **(2)** Existence and nonexistence of positive radial solutions of Neumann problems with critical Sobolev exponents (1991) *Arch. Rational Mech. Anal.* **115**, 3, 275–296. **(3)** Interaction between the geometry of the boundary and positive solutions of a semilinear Neumann problem with critical nonlinearity (1993) *J. Funct. Anal.* **113**, 2, 318–350. **(4)** A sharp solvability condition in higher dimensions for some Brezis–Nirenberg type equation (2002) *Calc. Var. Partial Differential Equations* **14**, 3, 275–317. **(5)** Role of the fundamental solution in Hardy–Sobolev-type inequalities (2006) *Proc. Roy. Soc. Edinb.* **A 136**, 6, 1111–1130. **(6)** Optimal entropy solutions for conservation laws with discontinuous flux-functions (2005) *J. Hyperbolic Differ. Equ.* **2**, 4, 783–837.

Awards & Distinctions: J C Bose Fellowship 2008.

Adyalkar, Pandurang Ganpatrao



Elected: 1974
Specialization: Geology; Hydrogeology; Seismology; Mining and Environment
Date and Place of Birth: 3 December 1927; Gullarghat, Maharashtra
Parents: Ganpatrao Adyalkar and Ramabai
Spouse and Children: Usharani; two *s*, two *d*
Address: Millennium Shopping Mall, 265, Bajaj Nagar, West High Court Road, Nagpur 440 010, India
Tel. (0712) 223 3560 (R)

Education: Nagpur Univ.: BSc 48, MSc 51, PhD 77; Govt of France: Cert. in Hydrogeology 69.

Career: GSI, Calcutta: Asst Geologist 53–57, Geologist 57–59, Sr Geologist 66–69, Dir 69–72; Exploratory Tube-wells Org.: Jr Geologist 59–61, Sr Geologist 61–64, Superintending Geologist 64–66; Central Ground Water Board: Dir 72–85; NEERI (CSIR): Consultant & Vis. Sci. 88–92.

Scientific Work: Examined majority of stratigraphical horizons formation-wise for their groundwater occurrence, exploration, hydraulic properties and development. Updating information on 'hydrogeology of hard rocks', bringing into light a number of potential groundwater formations by precisely listing their specific horizons and identifying their type areas on the national level.

Memberships: Fellow: Geological Soc. of London; Soc. Geologique de France; Intl Assn of Hydrogeologists; Geological Soc. of India; Geological, Mining & Metallurgical Soc. of India; Indian Soc. of Earth Scientists.

Agarwal, Girish Saran

Elected: 1981
Position: Nobel Foundation Chair & Regents Prof., Oklahoma State Univ., USA
Specialization: Quantum Optics; Quantum Information Science; Stochastic Processes
Date and Place of Birth: 7 July 1946; Bareilly, Uttar Pradesh
Parents: B S Agarwal and K D Agarwal
Spouse and Children: Sneh; two *d*
Address: Department of Physics, Oklahoma State University, Stillwater, OK 74078, USA
Tel. (+1-405) 744 3862 (O), (+1-405) 385 0468 (R), Mobile: 40571 41566
email: girish.agarwal@okstate.edu; URL: http://physics.okstate.edu/agarwal/index.html

Education: Gorakhpur Univ.: BSc 64; BHU, Varanasi: MSc 66; Univ. of Rochester: PhD 69.

Career: Rochester: Res. Assoc. 69–73, Asst Prof. 70–73; Univ. of Stuttgart, Inst. for Theoretische Physik: 71–73; TIFR, Bombay: Vis. Fellow 73; Inst. of Sci., Bombay: Prof. 75–77; Univ. of Hyderabad: Dean, School of Physics 77–80; Univ. of Colorado, Jt Inst. for Lab. Astrophysics: Vis. Fellow 81–82; Univ. of Manchester, Inst. of Sci.

and Tech.: SERC Sr Vis. Fellow 85–86; Physical Res. Laboratory Ahmedabad 95–2006: Dir and Distinguished Sci. JNCASR: INSA Albert Einstein Res. Prof.

Scientific Work: Contributed in the areas of quantum optics-coherence theory, super fluorescence, bistability, resonance fluorescence and cavity QED. Instrumental in starting quantum optical work in several areas like cooperative resonance fluorescence, applications of master equation techniques, optical resonance and nonlinear optical phenomena in partially coherent fields, quantum electrodynamic phenomena at surfaces, radiative decay of autoionizing states in the presence of intense laser field and higher order non-equilibrium phase transitions in optical systems, and a new field where one could control the efficiency of nonlinear optical processes.

Important Publications: **(1)** Quantum statistical theories of spontaneous emission and their relation to other approaches (1974) *Springer Tracts in Modern Physics,* 70, Springer-Verlag, New York (Monograph). **(2)** Stochastic processes – formalism and applications (1983) Springer *Lecture Notes in Physics*, 184, Springer-Verlag, Berlin. **(3)** Selected papers on fundamentals of quantum optics (1994) *SPIE Milestone Series*, MS103, SPIE – Optical Engineering Press, Washington, USA. **(4)** Selected papers on resonant and collective phenomenon in quantum optics (1994) *SPIE Milestone Series*, MS104 SPIE – Optical Engineering Press, Washington, USA.

Memberships: Fellow: American Physical Soc. 81; Optical Soc. of America 86; INSA 85; NASI 88; TWAS 97 • DSc (hon) Liege 2007 • Royal Soc. UK 2008.

Awards & Distinctions: S S Bhatnagar Prize 82 • Meghnad Saha Award 87 • Max Born Award 88 • Einstein Medal 94 • G D Birla Prize 95 • R D Birla Prize 96 • TWAS Prize in Physics 94 • Goyal Prize 94 • Humboldt Research Award 97 • Jawahar Lal Nehru Birth Centenary Lecture 2000 • M N Saha Birth Centenary Award 2001–02.

Agarwal, Shyam Swarup

Elected: 1985
Position: INSA Sr Sci.
Specialization: Internal Medicine; Genetics; Immunology
Date and Place of Birth: 5 July 1941; Bareilly, Uttar Pradesh
Parents: Satya Swarup Agarwal and Shyam Dulari
Spouse and Children: Pramila; one *s*, one *d*
Address: D-13, Vivekanandpuri, Lucknow 226 007, India
Tel. (0522) 232 2505 (R), Mobile: 99356 43480
email: agarwal_ss2000@yahoo.com

Education: Lucknow Univ.: BSc 58; King George Med. College: MBBS Hons 63, MD Hons 66; Fox-Chase Inst. for Cancer Res., Philadelphia & Univ. of Pennsylvania, USA: Postdoc Fellowship 67–70; Royal College of Physicians & Surgeons, Canada FRCP(C) 76.

Career: K G Medical College, Lucknow: Lecturer 70–73, Reader 73–86; Univ. of Pennsylvania: Res. Assoc. and Clinical Assoc. 68–69, 75–76; Inst. for Cancer Res., Philadelphia: Vis. Sci. 74–77; Memorial Sloan-Kettering Cancer Centre, NY: Vis. Res. Assoc. 79–81; Sanjay Gandhi Postgraduate Inst. of Medical Sci., Lucknow: Prof. and Head of the Dept of Medical Genetics and Clinical Immunology 86–97, Dean 86–91, Dir of SGPGI 93–97, 2000; ACTREC, Tata Memorial Centre, Navi Mumbai: Dir 2001–2004.

Scientific Work: Established importance of induction of DNA polymerase in the initiation of DNA synthesis in PHA-stimulated human lymphocytes; fidelity of *E. coli* DNA polymerase; effect of elevated temperatures on lymphocyte survival & proliferation; and immunomodulatory activity of *Panax ginseng* and splenopentin. Described several plant lectins which selectively agglutinate leukaemic cells. On clinical side, delineated the mode of inheritance of Indian childhood cirrhosis and Handigodu syndrome, the 2 diseases peculiarly seen in the Indian subcontinent. Established clinical efficacy of gugulipid, an ethyl acetate extract of gum gugulu, in primary hyperlipidemia; and evaluated the genotoxic effects of the MIC exposure in the Bhopal population. Group engaged in molecular characterization of genetic disease mutations and genetic delineation of endogamous population groups of the Indian subcontinent, with a view to understand the human biodiversity and its relevance to health and disease.

Important Publications: **(1)** Induction of DNA polymerase in human lymphocytes by phytohaemagglutinin (1968) *Proc. Natl. Acad. Sci. USA* **61**, 827–834. **(2)** Inheritance of Indian childhood cirrhosis (1979) *Human Hered.* **29**, 82–89. **(3)** Combined treatment of mice with *Panax ginseng* extract and interferon inducer (1983) *Planta Medica* **47**, 234–236. **(4)** Clinical trial of gugulipid: A new hypolipidemic agent (1986) *Ind. J. Med. Res.* **84**, 626–34. **(5)** Handigodu disease: A radiological study. A new variety of spondyloepi(meta)physeal dysplasia of autosomal dominant type (1994) *Skeletal Radiology* **23**, 611–19.

Memberships: Fellow: National Acad. of Medical Sci. • Founder Fellow: The Indian College of Physicians • Member: American Soc. of Human Genetics.

Awards & Distinctions: Kamala Menon Res. Award, ICMR 86 • S S Bhatnagar Prize, CSIR 86 • Glaxo Oration 92 and Amir Chand Oration, NAMS 2000 • J B Chatterjee Oration 93 and J G Parekh Oration, Indian Soc. of Hematology and Blood Transfusion 2002 • Ranbaxy Award for Clinical Research 99 • Vigyan Ratna, Award of Council of Science and Technology, UP 2000 • 39th B C Guha Memorial Lecture, Indian Science Congress 2001 • Jawaharlal Nehru Birth Centenary Lecture 2003 • Dr. T S Trimurti Memorial Lecture, INSA 2005.

Aggarwal, Rakesh

Elected: 2007
Position: Addl Prof. (Gastroenterology), Sanjay Gandhi PG Inst. Med. Sci., Lucknow
Specialization: Gastrointestinal and Liver Diseases; Viral Hepatitis Epidemiology; Health Economics
Date and Place of Birth: 13 February 1961; Jind, Haryana
Parents: R K Aggarwal and Pushpa
Spouse and Children: Amita; one *d* (Arushi)
Address: Department of Gastroenterology
Sanjay Gandhi Postgraduate Institute of Medical Sciences, Raebareli Road, Lucknow 226 014, India
Tel. (0522) 266 8700/2431 (O), (0522) 266 8869 (R)
email: aggarwal.ra@gmail.com

Education: AIIMS, New Delhi: MBBS 83, MD 86; PGIMER, Chandigarh: DM 89; LSHTM, London: MSc Epidemiology 2008.

Career: SGPGI, Lucknow: Asst Prof. 91–96, Assoc. Prof. 96–2000, Addl Prof. 2000–08; AIIMS, New Delhi: Prof. 2005–07.

Scientific Work: Contributed to a better understanding of epidemiology, clinical features, pathogenesis and immunological and public health aspects of hepatitis E virus (HEV) infection, the most important cause of acute viral hepatitis in India. Work showed that (i) intra-familial transmission of HEV is uncommon, (ii) duration of viral excretion during this infection is short, (iii) subclinical infection may serve a reservoir of HEV infections, and

(iv) HEV infection may lead to decompensation of pre-existing chronic lever disease. Made important contributions to health economics and policy. Using mathematical modelling tools, has studied the economics viability and public health importance of hepatitis B vaccination. This work showed that universal neonatal hepatitis B vaccination is highly cost-effective for the Indian population, and has helped guide national policy in this regard.

Memberships: Member: National Acad. of Medical Sci.

Awards & Distinctions: DBT National Bioscience Award • Dr D V Dutta Award for Research in Liver Disease • ICMR, Dr Sahib Singh Sokhey Award for Communicable Disease Research.

Agnihothrudu, Vangala*

Elected: 1967
Specialization: Microbiology; Plant Pathology; Agrochemicals; Plantation Crops; Environmental Hygiene
Date and Place of Birth: 15 May 1930; Attili, Andhra Pradesh
Parents: Vangala Subrahmanya Sarma and Vangala Venkata Subbamma
Spouse and Children: Indira; one *s*
Last Address: Agrochemicals and Plantation Crops, 18/1, Jayamahal Extension, First Main
First Cross, Bangalore 560 046, India
***Deceased:** 5 April 1999

Education: Madras Univ.: BSc Hons 50, MA 51, PhD 55, DSc 64.

Career: Indian Tea Assn, Tocklai Experimental Station: Mycologist 55–64; Special Coffee Res. Assn: Tech. Adviser 64–66; Agrochemical Res. Station: Head 68–85; Tata Res. Inst., United Planters: Dir; Assoc. of South India 88–91.

Scientific Work: Pioneered the work on rhizosphere microbiology in India. Isolated several species of mycetozoa for the first time in India, and contributed vastly to the myxomycetous flora of India. Monographed the diseases of tea bushes in India and contributed to the mycoflora of North-East India particularly in the tea growing regions of Assam. Introduced several new pesticides into the country and evaluated their safety; and worked on diseases of tea, coffee, rubber, and cardamom.

Memberships: Fellow: Botanical Soc. of India; Linnean Soc., London.

Agrawal, Hari Om

Elected: 1975
Position: Prof. & Dean UGC Emeritus Sci.
Specialization: Virology; Microbiology; Environmental Sciences; Biotechnology
Date and Place of Birth: 1 July 1936; Bareilly, Uttar Pradesh
Parents: L P Agrawal and Shakuntala
Spouse and Children: Pushpa; two *s* (Aditya and Ajai)
Address: Sri Laxman Bhavan, 20/2, Indira Nagar, Lucknow 226 016, India
Tel. (0522) 234 1586 (R)

Education: Aligarh Muslim Univ.: BSc 54, MSc 56; IARI, New Delhi: Assoc. IARI 58; Univ. of Montana: MS 61; State Agri. Univ. Wageningen, The Netherlands: DSc 64.

Career: IARI, New Delhi: Teaching Asst 58–59; Univ. of Montana: Res. Assoc. 59–61; Intl Agri. Centre, Wageningen, The Netherlands: Fellow 61–64; Wageningen Agri. Univ.: Res. Biochemist 64; Univ. of California, USA: Asst Res. Biochemist 64-66; Central Potato Res. Inst., Shimla: Virus Pathologist 66–70; National Res. Council of Canada, Virus Lab., Vancouver: Fellow 70–72; Himachal Pradesh Univ. Shimla, Dept of Biosciences: Prof. and Head 73, Dean, Faculty of Science 75–77, 84–86, Dean of Studies 86–88, Chmn 88–90; Chmn, Biosciences 84–95; Chmn, Biotechnology 95–96; Co-ordinator, Biotechnology Programme and Dean, Faculty of Life Sciences. Univ. of Chicago: Vis. Sci. 78–79; Himachal Pradesh Univ., Shimla, Pre Examination Coaching Centre for SC and ST: Hon. Dir 80–82, Co-ordinator Eco-Development Centre 82; Univ. of Garyounis, Libya: Vis. Prof. 82–84.

Scientific Work: Worked on several important viruses such as cowpea mosaic virus (CPMV), potato virus, clover virus and several others including polio and influenza leading to the discovery that the CPMV genome is divided between two ribonucleoprotein components – middle and bottom, and that both the RNAs in these particles are required for biological activity. This has opened up a whole new chapter in virology – a group of bipartite genome RNA/DNA viruses. Working on thermophilic microbes involving production of several thermophilic enzymes and isolation of a nitrogen fixing photosynthetic cyanobacterial strain from hot water springs in Himachal Pradesh. Analysis of lake ecosystems of Himachal Pradesh, their conservation and management; Sacbrood virus disease in honey bees. Isolation and characterization of plasmids of thermophilic *Bacillus* species; proteases from thermophilic bacteria.

Important Publications: **(1)** *Principles and techniques in plant virology* (1972) Van Nostrand and Reinhold, New York. **(2)** *Identification of cowpea mosaic virus isolates* (1964) Meded Landbouwhogeschool, Wageningen, Netherlands. **(3)** *Plant viruses in Asia* (1998) Gadjah Mada Univ. Press, Indonesia. **(4)** *Sericulture in India* (2000). **(5)** Molecular Biology of Viruses (2007) *Biotechnology*: *Plant health management,* Intl Book Distributing Co., Lucknow, 123–178.

Memberships: Fellow: Indian Phytopathological Soc.; NASI 82. Indian Virological Soc.; Indian Bot. Soc. • Chmn Intl Advisory Committee; Intl Conf. on Virology in the Tropics 91.

Awards & Distinctions: M J Narasimhan Medal Award 84 • Jeersannidhi Award 88.

Agrawal, Manindra

Elected: 2004
Position: N Rama Rao Prof., IIT Kanpur
Specialization: Computational Complexity Theory; Computation Number Theory
Date and Place of Birth: 20 May 1966; Allahabad, Uttar Pradesh
Parents: Surendra Prasad Agrawal and Himansha Bala
Spouse and Children: Rachna; two *d* (Isha, Arushi)
Address: Department of Computer Science, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7338 (O), (0512) 259 8363 (R), Mobile: 99350 62605
email: manindra@iitk.ac.in; URL: http://www.cse.iitk.ac.in/users/manindra

Education: IIT Kanpur: BTech 86; IIT Kanpur: PhD 91.

Career: IIT Kanpur: Res. Assoc. 92–93; Spic Sci. Foundation: Fellow 93–95; Univ. of Ulm: Humboldt Fellow 95–96; IIT Kanpur: Asst Prof. 96–99, Assoc. Prof. 99–2001, Prof. 2001.

Scientific Work: Designed a deterministic polynomial-time algorithm for testing the primality of a number. The interest in determining the primality of a number dates back to ancient Greeks and Chinese. At one level, the problem is very easy: by definition, a number is prime if it is not divisible by any smaller number except 1, and so by trying to divide the given number by all smaller numbers, one can determine if the number is prime. However, this method gets very cumbersome for large numbers (doing this for a 50 digit number would exhaust several lifetimes). So the quest was to design much faster algorithms or, in other words, polynomial time algorithms. Before this work, all the earlier algorithms for the problem were either super polynomial-time or probabilistic (in other words, not error-free). The algorithm has both theoretical and practical utility. On the theory side, it solves a long-standing open problem and introduces a new technique which may be useful elsewhere too. On the practical side, testing of primality of large numbers is a requirement in many public-key cryptosystems. Already, there are variants of this algorithm that are the fastest amongst the algorithms that produce a certificate of primality of a number.

Important Publications: **(1)** Primes is in P (2004) *Ann. Math.* **160,** 2, 781–793. **(2)** Primality and identity testing via Chinese remaindering (2003) *J. ACM* **50,** 4, 429–443. **(3)** The formula isomorphism problem (2000) *SIAM J. Comput.* **30**, 990–1009. **(4)** Reductions in circuit complexity: An isomorphism theorem and a gap theorem, (1999) *J. Computer System Sci.* **57**, 127–143. **(5)** DSPACE(*n*) = NSPACE(*n*): A degree theoretic characterization (1997) *J. Computer System Sci.* **54**, 383–392.

Memberships: Fellow: INSA 2007; NASI 2007; INAE.

Awards & Distinctions: Young Engineer Award, INAE 98 • IASc Assoc. 98–2001 • Clay Research Award, Clay Mathematics Institute 2002 • S S Bhatnagar Award 2003 • Distinguished Alumnus Award, IIT Kanpur 2003 • Fulkerson Prize 2006 • Godel Prize 2006 • Infosys Mathematics Prize 2008.

Agrawal, Prahlad Chandra

Elected: 1990
Position: Satish Dhawan Prof. (ISRO), TIFR, Mumbai
Specialization: X-ray Astronomy; Experimental High Energy Astrophysics
Date and Place of Birth: 15 April 1941; Ratlam, Madhya Pradesh
Parents: Chandmal Agrawal and Badambai
Spouse and Children: Manorama; one *s*, one *d* (Aalok, Rashmi)
Address: Department of Astronomy & Astrophysics, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2393 (O), (022) 2789 9894 (R), Mobile: 98673 43442
email: pagrawal@tifr.res.in, prahlad.agrawal@gmail.com

Education: Vikram Univ., Ujjain: BSc 61; Bombay Univ.: PhD 72.

Career: BARC Training School, Bombay: Physics Trainee 61–62; TIFR Bombay: Res. Assoc. 62–68, Fellow 68–75, Reader 75–83, Assoc. Prof. 83–90, Prof. 90–94, Sr Prof. 94–98, Sr Prof. (I) 98–2006; Centre NCRA-TIFR: Dir 99–2000, ISRO-Chair Prof. 2006–; California Inst. of Tech., USA, Dept of Physics: Postdoc Res. Fellow 72–75; Jet Propulsion Lab., Caltech, USA: Sr Resident Res. Assoc. 78–79; Inst. of Space and Astronautical Sci., Japan: Vis. Prof. 84; NASA Marshall Space Flight Centre, USA: Sr Resident Res. Assoc. 87–88; RIKEN: Vis. Prof. 97.

Scientific Work: Studied a variety of galactic and extragalactic X-ray sources with instruments flown on balloons, rockets and satellites resulting in the discovery of new X-ray sources as well as detection of new phenomena in them. Discovered the most rapidly variable extragalactic X-ray sources BL Lac object H 2155–304 and a new 113 minute period AM Her. type binary Hol 139-68. Discovered the flaring activity in the black hole binary Cyg X-1 in hard X-rays from a balloon observation. Studied coronal X-ray emission from RS CVn binaries and flare stars. Recently studying X-ray binaries Cyg X-3, 4U1907+09, Cyg X-1 and the X-ray pulsar GX 1+4. Designed and developed the Indian X-ray Astronomy Experiment launched on Indian satellite IRS-P3 for temporal studies of X-ray binaries, detected QPOs and bursts from microquasar GRS 1915+105 with the IXAE, Principal Investigator for the Astrosat satellite mission to be launched at the end of 2009 and responsible for the design and development of Large Area X-ray Proportional Counter (LAXPC) instrument.

Important Publications: **(1)** Rapid variations in high energy X-ray flux from Cyg-1 (1971) *Nature* **232**, 438. **(2)** An intense high latitude X-ray source H2156-304: A new BL lacertae object (1979) *ApJ. Lett.* **231**, L25. **(3)** A new Am Her-like X-ray source (1983) *Nature* **301**, 318. **(4)** Study of quiescent state X-ray emission from flare stars (1986) *Mon. Not. R. Astron. Soc* **219**, 225. **(5)** Quasi-regular X-ray bursts from GRS 1915+105 observed with the IXAE: Possible evidence for the matter disappearing into the event horizon of the Black Hole (1998) *ApJ. Lett.* **492**, L63.

Memberships: Fellow: NASI 96 • Member: International Astronomical Union • Life member: Astronomical Soc. of India; Indian Physics Assn.

Awards & Distinctions: Vikram Sarabhai Res. Award 85 • Astronautical Soc. of India Award for Space Sci. 97 • M P Birla Memorial Award for Astronomy 2003.

Ahluwalia, Jagdish Chander

Elected: 1978
Position: Sr Vice President, The Indian Thermodynamics Soc.
Specialization: Thermodynamics of Biopolymers and Surfactants in Solutions; Solute-Solvent Interactions
Date and Place of Birth: 6 July 1935; Kotfatuhi, Punjab
Parents: Amar Nath Ahluwalia and Ram Pyari
Spouse and Children: Baljit; two *d*
Address: 186, SFS Apartments, Hauz Khas, New Delhi 110 016, India
Tel. (011) 2656 4519 (R), Mobile: 92137 36359
email: ruppalws@yahoo.co.in

Education: Panjab Univ.: MSc Hons 56; Purdue Univ.: PhD 63.

Career: Carnegie Mellon, Dept of Chem.: Res. Assoc. 63–64; IIT Kanpur, Dept of Chem.: Faculty 64–75; IIT Delhi, Dept of Chem.: Prof. 75, Head 76–79, Dean 85–87.

Scientific Work: Contributed to understanding of solute–solvent interactions, in particular hydrophobic interactions of biopolymers and model biopolymer systems, in aqueous solutions by systematic calorimetric investigations of thermodynamics of proteins and model solute systems, such as, quaternary ammonium halide salts, sodium carboxylates, amino acids, peptides, sugars, and surfactants, in aqueous and aqueous–nonaqueous mixed solvent systems.

Memberships: Member: INSA 84; Indian Soc. for Surface Sci. and Tech • President: Indian Soc. for Surface Sci. and Technology.

Awards & Distinctions: Yeddanapalli Memorial Medal and Award 75 • S R Palit Memorial Award 85 • The Indian Thermodynamics Soc.–Lifetime Achievement Medal 2008.

Ahmad, Fakhruddin*

Elected: 1974
Specialization: Geotectonics, Stratigraphy; Sedimentology
Date and Place of Birth: 4 January 1916; Satrikh, Barabanki, Uttar Pradesh
Spouse and Children: Salma; two *s* , two *d*
Last Address: DS/MIG-16, Sitapur Road, Aliganj, Lucknow 226 020, India
***Deceased:** 23 March 1996

Education: Aligarh Muslim Univ.: BSc 36, MSc 38; Univ. of Tasmania, Australia: PhD 53.

Career: GSI: Geologist 41–64; Aligarh Muslim Univ., Dept of Geology: Prof. & Head 64–75; Geology and Mines, Govt of Jammu & Kashmir: Commissioner 75–81; J&K Minerals Ltd, Jammu and Kashmir: Managing Dir 77–81.

Scientific Work: Demonstrated that there is no suture to the east or the west of the Indian plate, hence India could not have migrated from south to north and hence it was all through, a part of Laurasia. Demonstrated the diameter of the Earth in the cambrian times (550 m.y.) was 50% of the present diameter and in the permian (250 m.y.) a little more. The rate of increase of the Earth; diameter is progressively increasing.

Memberships: Fellow: Geological Soc. of India.

Awards & Distinctions: Chrestien Intl Gondwanaland Award 70 • K P Rode Geology Award 91.

Ahmad, Nazir*

Elected: 1934
Specialization: Physics
Date and Place of Birth: 1 May 1898; Lahore, Pakistan
Last Address: Pakistan Atomic Energy Commission, Pakistan
***Deceased:** 12 August 1973

Education: MAO College, Aligarh, British India: BSc Physics 1919; Univ. of Manchester, UK: MSc 23, PhD 25.

Career: Indian Central Cotton Committee, Bombay, Technological Laboratory: Asst Dir 30, Dir 31; Indian Tariff Board: Member 45, Chmn Tariff Commission 50; Pakistan Atomic Energy Commission: first Chmn 56–60.

Scientific Work: Was responsible for development of the nuclear programme in Pakistan.

Memberships: Founder Member: Pakistan Acad. of Sci.

Ahmad, Talat

Elected: 2004
Position: Prof., Univ. of Delhi
Specialization: Igneous Petrology; Geochemistry; Himalayan Geology
Date and Place of Birth: 23 December 1955; Giridih, Jharkhand
Parents: Alhaj Moinuddin Ahmad and Khurshida
Spouse and Children: Nasrin Sedghi; three s (Shahaiyar, Mazyar, Salar)
Address: Department of Geology, University of Delhi, Delhi 110 007, India
Tel. (011) 2766 7073 (O), (011) 2766 2906 (R), Mobile: 99682 19342
email: tahmad001@yahoo.co.in, tahmad001@gmail.com

Education: AMU, Aligarh: BSc 75, MSc 77; JNU, New Delhi: MPhil 80, PhD 85; Univ. of Leicester, UK: Postdoc Res. 88–89; Univ. of Cambridge UK: Postdoc Res. 97–98; Nagoya Univ. Japan: Postdoc Res. 99–2000.

Career: GSI: Geologist 80–81; WIHG, Dehradun: Sci. B 84–2003; Univ. of Delhi, Geology Dept: 2003–.

Scientific Work: Geochemical characterization of precambrian mafic magmatic rocks from the Himalayas, NW and central Indian shield. Pertogenesis and tectonic settings of the precambrian mafic rocks and arc related rocks from Indus-Shyok suture zones, Ladakh and Trans-Himalaya.

Important Publications: **(1)** Geochemistry and petrogenesis of the basal Aravalli volcanics near Nathdwara, Rajasthan, India (1991) *Precambrian Res.* **49**, 185–204. **(2)** Geochemistry of precambrian mafic magmatic rocks of the Western Himalaya, India: Petrogenetic and tectonic implications (1999) *Chemical Geol.* **160**, 103–119. **(3)** Isotopic constraints on the structural relationships between the lesser Himalayan series and the higher Himalayan series, Garhwal Himalaya (2000) *Geol. Soc. Am. Bull.* **112**, 467–477. **(4)** Provenance of late archean Aravalli mafic rocks from Rajasthan, Northwestern India: Nd isotopes, evidence for enriched mantle reservoirs (2008) *Precambrian Res.* **162**, 150–159. **(5)** Geochemical and isotopic constraints on the age and origin of the Nidar ophiolitic complex, Indus suture zone, Ladakh, India (2008) *Tectonophysics* **451**, 206–224.

Memberships: Member: PAMC; SERC; Deep Continental Studies Programme; Expert Committee BOYSCAST; DST.

Awards & Distinctions: National Mineral Award 94 • JSPS Invitation Fellowship of Govt of Japan 99.

Aiyar, R Gopala*

Elected: 1934
Specialization: Classical Zoology; Marine Biology
Date of Birth: 20 January 1887
Last Address: University Zoological Laboratory, Senate House, Madras, India
***Deceased:** 18 January 1971

Education: MA; Univ. of Liverpool, UK: MSc.

Career: Teachers College, Madras: Head Natural Sci. Dept; Maharajah's College, Ernakulam: Prof. of Zoology; Presidency College, Madras: Additional Prof. of Zoology; Univ. Zoological Laboratory, Madras: Dir.

Scientific Work: Made original contributions in morphology, embryology and bionomics of Indian polychaete worms, echnoids and fishes. Published original papers on the marine and brackish water fauna of the Madras coast and on the cytology of various marine animals, in particular on the oogenesis and the Golgi apparatus of invertebrate marine animals.

Important Publications: **(1)** Development of *Salmacis bicolor*, Agassiz (1934) *Nature* **134**, 3397, 899–900. **(2)** Sharks and shark-liver oil (1943) *Curr. Sci.* **12**, 77–78.

Memberships: President: Zoology Section, Indian Science Congress 33.

Awards & Distinctions: Curzon Prize (Maharajah of Travancore).

Ajayaghosh, Ayyappanpillai

Elected: 2007
Position: Sci., National Inst. for Interdisciplinary Sc. & Tech., Thiruvananthapuram
Specialization: Organic Functional Materials; Molecular Self-assembly; Molecular probes; pi-Conjugated Systems
Date and Place of Birth: 30 July 1962; Vellimon, Kerala
Parents: Ayyapan Pillai and N Ananda Bai Amma
Spouse and Children: Ambili; two *s* (Anantha Krishnan, Anantha Raman)
Address: Photonics & Photosciences Group, National Institute for Interdisciplinary Science and Technology, Industrial Estate Post, Thiruvananthapuram 695 019, India
Tel. (0471) 251 5306 (O), (0471) 249 1592 (R), Mobile: 94460 59059
email: ajayaghosh62@gmail.com

Education: Kerala Univ.: BSc 82; Calicut Univ.: MSc 84, PhD 89.

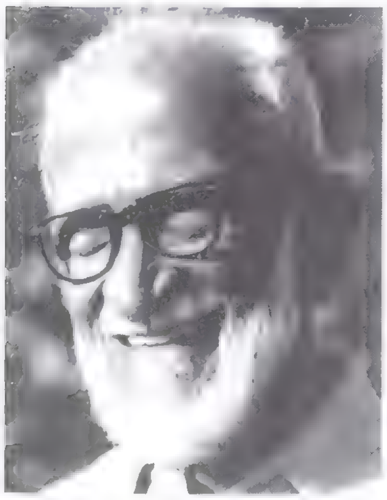
Career: NIIST: Sci. 88–.

Scientific Work: Major contributions are in the field of supramolecular chemistry and organic materials, particularly in the fields of molecular self-assemblies and molecular probes. A variety of fluorescent molecules based on linear π-systems and functional dyes have been designed and used as building blocks to the development of functional supramolecular architecture and molecular probes. These studies have provided insights into the size and shape controlled creation of supramolecular architecture with tunable optoelectronic and chiroptical properties.

Important Publications: **(1)** *Angew. Chem. Int. Ed. Engl.* (2006) **45**, 1141. **(2)** *Angew. Chem. Int. Ed. Engl.* (2006) **45**, 7729. **(3)** *Angew. Chem. Int. Ed. Engl.* (2007) **46**, 230. **(4)** *Angew. Chem. Int. Ed. Engl.* (2008) **47**, 5750. **(5)** *Acc. Chem. Res.* (2007) **40**, 644–656.

Awards & Distinctions: ISCA Medal for Young Scientist 88 • INSA Medal for Young Scientist 91 • CRSI Bronze Medal 2001 • MRSI Medal 2007 • S S Bhatnagar Prize 2007.

Ali, Salim*



Elected: 1975
Specialization: Ecology; Zoogeography; Nature Conservation; Ornithology
Date and Place of Birth: 12 November 1896; Bombay, Maharashtra
Parents: Moizuddin Abdul Ali and Zeenat-un-nissa
Spouse: Tehmina
Last Address: No. 46 Pali Hill, Bombay 400 050, India
***Deceased:** 20 June 1987

Education: Bombay Univ.: BA Hons; Univs of AMU, Delhi, Andhra: DSc hc 58, 73, 78.

Career: Bombay Natural History Soc.: President; Indian National Section of the Intl Council for Bird Preservation: Chmn.

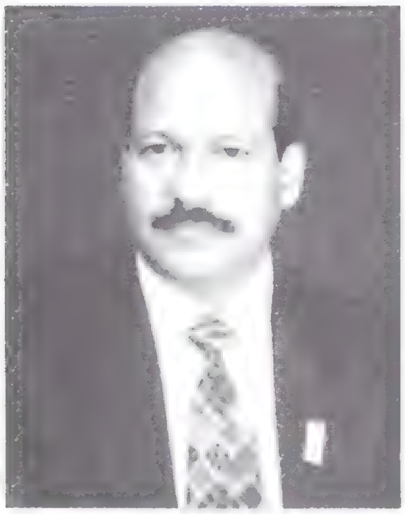
Scientific Work: Trained in systematic ornithology under Erwin Stresemann at Berlin Univ. Zoological Museum. Conducted ornithological expeditions in most of the unexplored and little known parts of the Indian subcontinent including the western Himalayas, Sikkim, Bhutan and Arunachal Pradesh; also in western Tibet and Afghanistan. Studied birds in neighbouring countries like Burma and Malaya known as the Birdman of India.

Important Publications: **(1)** *Handbook of the birds of India and Pakistan* (1964–74) Oxford Univ. Press. **(2)** *Fall of a sparrow* (Autobiography) (1985). **(3)** *The book of Indian birds* (1941) BNHS, Bombay.

Memberships: Fellow: INSA 58 • Member: Deutsche Ornithologen-Gesselschaft; British Ornithologists Union; Soc. Ornithologique de France; Asiatic Soc. • President: World Wildlife Fund.

Awards & Distinctions: Joy Gobinda Law Medal 53 • Padma Bhushan 58 • British Ornithologists Union Gold Medal 67 • John Phillips Memorial Medal for Conservation 69 • Sunderlal Hora Memorial Medal 70 • USSR Pavlovsky Centenary Memorial Medal 73 • Insignia of Officer in the order of the Golden Ark for Nature Conservation by HRH Prince Bernhard of the Netherlands • Padma Vibushan 76 • J Paul Getty Wildlife Conservation Prize 76 • Asiatic Soc. of Bangladesh Gold Medal 80.

Ali, Sher



Elected: 2005
Position: Sr Staff Sci. and Chief, National Inst. of Immunology, New Delhi
Specialization: Molecular Genetics of Human and Animals; Gene Expression and Genome Organisation; Genomics of Endangered Species
Date and Place of Birth: 7 August 1955; Varanasi, Uttar Pradesh
Parents: Akhter Husain and Zahra Fatima
Spouse and Children: Tabassum; two *s* (Farhan, Ayan)
Address: Molecular Genetics Laboratory,
National Institute of Immunology, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2670 3753 (O), (011) 2670 3613 (R), Mobile: 98180 04632
email: alisher@nii.res.in; URL: www.nii.res.in

Education: AMU: BSc 74, MSc 76; Univ. of Delhi: PhD 81.

Career: Univ. of Delhi: PDF 81–83; AMU, Aligarh: Lecturer 83–84; Max Planck Inst. For Immunobiology, AVH: Fellow 84–86; Beckman Research Inst., City of Hope National Medical Centre: Res. Fellow 86-88; AMU: Reader 88–89; Natl Inst. Immunology: Chief of the Lab 89–93, Staff Sci. 89–.

Scientific Work: Demonstrated gene dosage compensation in a non-*Drosophila* system, *Acheta domesticus*, an Orthopteran insect; human DNA fingerprinting using synthetic oligodeoxyribonucleotide probes. Demonstrated for the first time, that leukemic cells arise from cloned cytotoxic lymphocytes during cell culture. Developed a monolocus polymorphic marker useful for documentation of chimerism following bone marrow transplantation. Demonstrated enzymatic synthesis of the DNA probe complementary to VNTR loci, useful for human DNA fingerprinting. Established a correlation between repeated abortion and high level of mosaicism of the DYZ1 fraction. Showed expression of multiple c-kit receptor messenger ribonucleic acid transcripts during postnatal development of rat testis. Demonstrated that extracellular domain of c-kit receptor is uniquely organized in each species and may be used for delineation of the species and construction of phylogenetic trees. Developed a cloned probe pSSR (2) which does not cross hybridize with *Diceros bicornis* or any other species establishing clearly that this probe is species specific and unique to *Rhinoceros unicornis* genome. This is a potential genetic marker for ascertaining the origin of tissue of rhino horn in the event of poaching. Reported startling mosaicism of the Y-chromosome and tandem duplication of the SRY and DAZ genes in patients with Turner syndrome. Uncovered unique signatures of the natural background radiation on the human Y chromosomes from Kerala. Reported AZFc somatic microdeletions and copy number polymorphism of the DAZ genes in human males exposed to natural background radiation. Reported spermatozoal specific transcriptomes in buffalo (*Bubalus bubalis*). Demonstrated two transcript variants of Smoc-1 with differential tissue and age specific expression in *Bubalus bubalis*.

Important Publications: **(1)** Unique signatures of the natural background radiation on the human Y chromosomes from Kerala (2009) *PLoS ONE* 4(2)e4541. **(2)** Organization and differential expression of the GACA/GATA tagged somatic and spermatozoal transcriptomes in buffalo, *Bubalus bubalis* (2008) *BMC Genomics* **9**, 132–148. **(3)** Characterization of Smoc-1 uncovers two transcript variants showing differential tissue and age specific expression in *Bubalus bubalis* (2007) *BMC Genomics* **8**, 436–450. **(4)** AZFc somatic microdeletions and copy number polymorphism of the DAZ genes in human males exposed to natural background radiation (2007) *Hum. Genet.* **121**, 337–346. **(5)** Genomic instability of the DYZ1 repeat in patients with Y chromosome anomalies and males exposed to natural background radiation (2006) *DNA Research* **13**, 103–109.

Memberships: Fellow: INSA 2002; NASI 98.

Awards & Distinctions: Zahoor Qasim Gold Medal 99 • N K Iyengar Gold Medal 2000.

Alikunhi, Kolliyil Hameed

Elected: 1969
Specialization: Freshwater and Brackishwater Aquaculture; Fish-Prawn Breeding Hatchery Technology; Stomatopod Biology
Date and Place of Birth: 27 May 1918; Azhicode, Kerala
Parents: K M Hameed and K A Aishumma
Spouse and Children: Asma; one *s*, three *d*
Address: Almanar, Eriyad 680 666, India
Tel. (0480) 281 9645 (R)

Education: Madras Univ.: BSc 38, MSc 41; Univ. of Japan: Advanced Trg in Aquaculture 59.

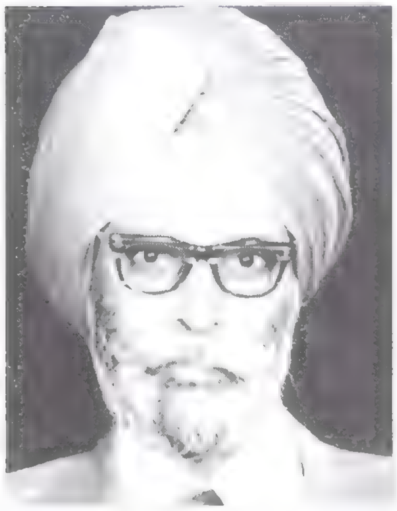
Career: Madras Univ., Zoology Res. Lab.: Res. Asst 41–43; Maharaja's College, Kerala, Zoology Dept: Lecturer 43–45; Dept of Fisheries, Madras: Asst Dir 45–48; Central Inland Fisheries Res. Inst., Barrackpore: Res. Offr, Sr Res. Offr, Dy Dir, Officiating Dir 48–64; Central Inst. of Fisheries Education: Dir 64–72; FAO Brackishwater Shrimp and Milkfish Culture Applied Res. and Trg Project: Project Manager 72–77; Govt of Kerala, Cochin: Fisheries Development Adviser & Ex-Officio Secretary 78–81; FAO Investment Centre, Rome: Consultant 80, 82, 84.

Scientific Work: Successfully bred major carp in 1957. Organized large-scale hypophysation programme for committed bulk supplies of carp seeds and demonstrated feasibility of hypophysation for bulk supplies of quality fish seed. Developed technology for successful rearing of carp spawn in nursery ponds; commercial breeding and seed production of common carp *Cyprinus carpio*. Introduced Chinese grass carp and silver carp in the country. Planned, organized and conducted successfully tagging oil sardine and mackarel programme. Demonstrated controlled breeding of common carp in Jordan. Evolved technology of induction of maturation and spawning in pond reared stocks of penaeid shrimps by eye-stalks surgery, to produce viable seed for stocking. Established first commercial shrimp hatchery and adopting entirely new, simple system of hatchery management produced advanced post-larvae of *P. monodon* and *P. indicus* for culture. Demonstrated complete feasibility of large-scale commercial rearing of marine prawn larvae with transported seawater. Developed technology of suspension feeds for high density rearing of carp spawn.

Memberships: Member: Board of Examiners; Central Inst. of Fisheries Education Bombay; Academic Council of Kerala Agri. Univ., Trichur • President: Assn for Retd Fisheries Personnel, Cochin.

Awards & Distinctions: INSA Chandrakala Hora Memorial Gold Medal.

Amarjit Singh



Elected: 1974
Specialization: Millimeter Wave Tubes; Microwave Tubes; Microwave Electronics
Date and Place of Birth: 19 November 1924; Ramdas, Punjab
Parents: Jagdish Singh and Ishar
Spouse and Children: Surinder; three *s* (Harinder Jit, Narinder Jit, Arvind Jit)
Address: 12, Auburn Court, Vernon Hills, IL 60061, USA
Tel. (+1-847) 247 9260 (R)
email: amarjit24@sbcglobal.net, amarjitsingh@ieee.org
URL: http://www.irap.umd.edu/cpbg/personnel/singh.htm

Education: Panjab Univ.: BSc Hons 44, MSc 45; Harvard Univ., Massachusetts: MESc 47, PhD 49.

Career: Delhi Univ: Lecturer in Radio Phys. 49–53; NPL: Sci. Offr 53–57; Central Electronics Res. Inst., Pilani: Asst Dir, Dy Dir 57–62, Dir 63–84, National Chief & Project Coordinator (UNDP Project) 85–86.

Scientific Work: Proposed a scheme for energy recovery from spent beams in large-orbit gyrotrons (LOGs). Made numerical analysis and designed depressed collectors for LOGs. Set up a proof-of-principle experiment and verified this scheme for energy recovery. Developed guidelines for design of small orbit gyrotrons (SMOG). Investigated the effect of adiabatic and non-adiabatic magnetic field profiles on ratio of transverse to longitudinal velocity components. Developed code for precise tailoring of magnetic field profiles in collector region. Applied these techniques to design depressed collectors for SMOG-s cavity gyrotron with axially flowing as well as radially extracted spent beam; quasi-optical gyrotron with severe constraint on maximum allowable collector radius. Developed computer codes for computer-aided design of depressed collector radius.

Important Publications: **(1)** Integrated design of depressed collectors for gyrotrons (1997) *IEEE Trans. Plasma Science* **25**, 480–491. **(2)** Design of multistage depressed collector system for 1-MW CW gyrotrons - Part I: Trajectory control of primary and secondary electrons in a two-stage depressed collector (1999) *IEEE Trans. Plasma Science* **27**, 490–502. **(3)** Advancements in codes for CAD of depressed collectors and tracing of backscattered electrons, Part I: Optimization of depressed potentials and tracking of multiple orders of backscatter (2002) *IEEE Trans. Plasma Science*, 1265–1270. loc.cit. Part II, Improvements in the modeling of physics of secondary electron emission and backscatter (2002) *IEEE Trans. Plasma Science*, 1271–1276. **(4)** Improvements in depressed collector performance by modifications to electrode geometry vis-a-vis trajectories of backscattered electrons (2004) *IEEE Trans-PS*, 1267–1276 **(5)** Simplified methodology to evaluate effect of backscattered electrons in gyrotrons with depressed collectors (2006) Proc. of International Vacuum Electronics Conference, 2006, Monterey, CA, USA, 491–492.

Memberships: Fellow: Inst. of Telecom Engg, New York; IEE Engg.

Awards & Distinctions: S K Mitra Memorial Award 69 & 76 • DSc hc, Punjabi Univ. • Import Substitution Award 72 • Padma Bhushan 85.

Ambasankaran, Cadambi*

Elected: 1973
Specialization: Nuclear Engineering; Vacuum Technology
Date and Place of Birth: 22 August 1923; Madras
Parents: Lakshminarayanan and Jayalakshmi
Spouse and Children: Meenakshi; one *s*, one *d*
Last Address: No. 19, Saras Baug, Sion-Trombay Road, Deonar, Bombay 400 088, India
***Deceased:** 20 August 1990

Education: Christian College, Madras: MSc.

Career: Atomic Energy Establishment, Electronics Instrumentation Group, Bombay: Dir 54–73; Variable Energy Cyclotron, Calcutta: Project Dir; Magnetohydrodynamics Project in collaboration with BHEL and Institute of High Temperature, Moscow and BARC: Project Dir.

Scientific Work: Actively involved in the development of a 20 MeV linear accelerator at Harwell and a 300 MeV electron synchrotron at Glasgow. Was instrumental in the development of an electron gun for the injection of a high current beam into a 5 MeV microwave accelerator. Also initiated a comprehensive programme in accelerators, high vacuum technology and related areas. In the field of plasma technology, important contribution was towards the development of plasma spray and cutting torches.

Memberships: Member: National Res. & Development Corporation; Central Sci. Instrumentation Org.; Bharat Electronics Ltd; Central Electronics Ltd; Indo-Burma Petroleum Co.; Uptron Anand Ltd • Chmn: Electronics & Instrumentation Res. Committee of Board of Res. in Nuclear Sci.

Awards & Distinctions: Homi J Bhabha Award 75 • INSA Mahalanobis Medal 78.

Amritkar, Ravindra Eknath

Elected: 1994
Position: Sr Prof., PRL, Ahmedabad
Specialization: Nonlinear Phenomena; Chaos; Statistical Physics
Date and Place of Birth: 19 August 1951; Pune, Maharashtra
Parents: Eknath Wani and Sushila
Spouse and Children: Shobha; two children
Address: Theory Division, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4451 (O), (079) 2686 2141 (R), Mobile: 93748 75996
email: amritkar@prl.res.in; URL: http://www.prl.res.in/~amritkar

Education: Univ. of Poona: BSc 71; IIT, Bombay: MSc 73; IISc, Bangalore: PhD 78.

Career: Univ. of Poona: Res. Assoc. 78–80, Lecturer 81–90, Reader 90–

Scientific Work: Introduced the idea of cluster synchronization in coupled dynamical systems on complex networks and studied the mechanism of its occurrence. Proposed a new method of synchronization, known as impulsive synchronization. Worked on two important applications of synchronization: gave a new method of parameter estimation and demonstrated the importance of competition and synchronization in the extinction of species. Studied the first passage time in small world networks.

Important Publications: **(1)** Spatially synchronous extinction of species under external forcing (2006) *Phys. Rev. Lett.* **96**, 258102. **(2)** Self-organized and driven synchronization in coupled maps (2003) *Phys. Rev. Lett.* **90**, 014101. **(3)** Random spread on the family of small-world networks (2001) *Phys. Rev.* **E63**, 041104. **(4)** Dynamic algorithm for parameter estimation and its applications (2000) *Phys. Rev.* **E61**, 6461. **(5)** Synchronization of chaotic orbits: The effect of a finite time step (1993) *Phys. Rev.* **E47**, 3889.

Memberships: Sr Assoc.: Intl Ctr. for Theoretical Phys., Trieste, Italy • Fellow: Maharashtra Acad. of Sci.

Awards & Distinctions: Meghnad Saha Award for Theoretical Sci. 95.

Anand Kumar, Trichnopoly Chelvaraj

Elected: 1981
Position: Chmn, Hope Infertility Clinic & Res. Foundation, Bangalore
Specialization: Human Reproduction
Date and Place of Birth: 18 January 1936; Bangalore, Karnataka
Parents: T N Chelvaraj and Kamala
Spouse and Children: Karpagam; one *s*, one *d* (Vijay, Ambika)
Address: Hope Infertility Clinic & Research Foundation, 33/1, Aga Abbas Ali Road
Bangalore 560 042, India
Tel. (080) 2559 9607 (O), (080) 2559 9607 (R), Mobile: 98440 17016
email: anand_kumar@vsnl.com

Education: Mysore Univ.: BSc Hons 58, MSc 59; Rajasthan Univ.: PhD 60; Univ. of Birmingham: Postdoc Res. 64.

Career: Mysore Univ.: Lecturer 60; Rajasthan Univ.: Lecturer; AIIMS, New Delhi: Lecturer, Asst Prof. and Assoc. Prof. 82, Director; Inst. for Res. in Reproduction, ICMR, Bombay: Dir 82.

Scientific Work: Development of contraceptives, nasal sprays for contraceptive diagnostic methods and therapeutic modalities for the treatment of infertility. Responsible for the introduction of several medically assisted reproductive technologies in India for the first time, including India's first scientifically documented *in vitro* fertilization-embryo transfer baby and GIFT baby in 86–87. Working on research and delivery of reproductive health care, commercial application of lead technologies in the diagnosis and treatment of reproductive health care products.

Memberships: Member: Intl Primatological Soc.; American Fertility Soc. • President: Primatological Soc. of India; Fellow: NAMS 81 • Indian Soc. for Study in Fertility Regulation.

Awards & Distinctions: S S Bhatnagar Prize 77 • Jawaharlal Nehru Fellow 81 • Sanjay Gandhi Memorial Award 83 • Univ. of Cambridge, UK, Vis. Prof. 86.

Anand, Bal Krishan*

Elected: 1975
Specialization: Neurophysiology; Medical Education
Date and Place of Birth: 19 September 1917; Lahore
Parents: Vishveshwar Das Anand and Saraswati Devi
Spouse and Children: Kamala; one *s*, two *d*
Last Address: B9/21, Vasant Vihar, New Delhi 110 057, India
***Deceased:** 2 April 2007

Education: King Edward Medical College, Lahore: MBBS 40; Punjab Univ.: MD 48; Yale Univ.: Postdoc Res. 51.

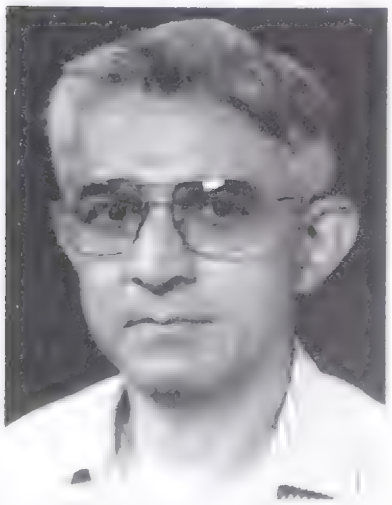
Career: Lady Hardinge Medical College, New Delhi: 49–56; AIIMS, New Delhi: Prof. and Head of Physiology 57–74, Dean 69–74, Emeritus Prof. 77–82; Univ. of London: Commonwealth Vis. Prof. 66; Pennsylvania School of Medicine, USA: Vis. Prof. 68; WHO, South East Asia Region: Asst Dir (Health Manpower Development) 74–77; Sher-i-Kashmir Inst. of Medical Sci., Srinagar: Dir 82–85.

Scientific Work: Described the presence of a 'feeding centre' and a 'satiety centre' in the hypothalamic region of brain in 1951. Made extensive studies to establish the mechanisms involved in their regulation of feeding behaviour. Established the regulation of various visceral responses from the limbic system of brain linking emotional behaviour with these responses, which explain certain psychosomatic disorders. Studied the hypothalamic regulation of some endocrinal responses, especially those involved in reproductive behaviour. Pioneered investigations on meditative 'yogis,' especially their central nervous responses.

Memberships: Fellow: NAMS; Natl Board of Examinations.

Awards & Distinctions: Amir Chand Award 55, 62 • G J Watumull Memorial Award 61 • S S Bhatnagar Prize 63 • Silver Jubilee Award by Medical Council of India 69 • Padma Shri 69 • DSc hc from BHU 83 • B C Roy Award 84.

Anand, Gangeshwari Venkatasubbiah



Elected: 1997
Position: Vis. Prof., ECE Dept, IISc, Bangalore
Specialization: Statistical Signal Processing; Ocean Acoustics; Nonlinear Dynamics
Date and Place of Birth: 16 October, 1943; Bangalore
Parents: G Venkatasubbiah and Girija
Spouse and Children: Usha; one *s* (Ajit)
Address: Department of Electrical Communication Engineering, Indian Institute of Science,
Bangalore 560 012, India
Tel. (080) 2360 8434, (080) 2293 2277 (O), (080) 2361 1263 (R)
email: anandgv@ece.iisc.ernet.in; gargeshwari_anand@yahoo.com

Education: Osmania Univ., BSc 62, MSc 64; IISc: PhD 71.

Career: IISc, Bangalore: Lecturer 69–74, Asst Prof. 74–81, Assoc. Prof. 81–94, Prof. 94–2006, Dean, Faculty of Engg 2004–06; Univ. College, London: Vis. Prof. 2006, Vis. Fellow 78–79; Naval Physical & Oceanographic Lab., Cochin: Vis. Sci. 96–97; Univ. of Angers, France: Invited Prof. 2002, 2004; Cankaya Univ., Ankara, Turkey: Vis. Prof. 2003–04; PES Inst. of Technol, Bangalore: MRD Chair Prof. 2007; Naval Res. Board: Head of Ocean Environment Panel 2008.

Scientific Work: Investigation of nonlinear resonance in coupled nonlinear systems under harmonic and narrowband random excitation. Development of singular perturbation techniques to study nonlinear propagation of Rayleigh waves, and their application to surface acoustic wave devices. Study of co-propagation of optical pulses of different frequencies in fibres and optical waves in nonlinear media, with applications to fibre optic communication systems and optical switching. Development of techniques of signal estimation in chaotic noise. Development of mathematical models of sound propagation in range-dependent shallow ocean. Studies of ocean acoustic tomography through inversion of ray/mode travel time data for monitoring environmental fluctuations in ocean. Development of novel array signal processing techniques for signal detection and source localization in shallow ocean. Development of efficient inversion techniques for estimation of acoustic parameters of seabed from acoustic field data. Development of novel nonlinear techniques of signal detection and estimation in non-Gaussian noise. Collaborative research with scientists from several national laboratories including NPOL, NSTL, NIO, and NIOT.

Memberships: INAE 2002.

Important Publications: **(1)** Subspace intersection method of high resolution bearing estimation in shallow ocean (2004) *Signal Processing* **84**, 1367–1384. **(2)** Design of detectors based on stochastic resonance (2003) *Signal Processing* **83**, 1193–1212. **(3)** Normal mode sound propagation in an ocean with random narrowband surface waves (1993) *J. Acoust. Soc. Am.* **94**, 279–292. **(4)** Spectral approach for the soliton and periodic solutions of the nonlinear wave equation (1993) *J. Opt. Soc. Am.* **B10**, 697–703. **(5)** Surface acoustic waves of finite amplitude excited by a monochromatic line source (1980) *J. Acoust. Soc. Am.* **68**, 567–574.

Awards & Distinctions: K S Krishnan Memorial Award • IETE M S Narayanan Memorial Award, Acoustical Soc. of India.

Anand, Nitya

Elected: 1974
Specialization: Organic Chemistry; Medicinal Chemistry
Date and Place of Birth: 1 January 1925; Lyallpur, Punjab
Parents: Bhai Balmukand and Kartar Devi
Spouse and Children: Swarn; two *s*, one *d*
Address: Lumbini, B-62, Nirala Nagar, Lucknow 226 007, India
Tel. (0522) 278 8587, (0522) 404 3229 (R), Mobile: 94152 06914
email: nityaanand1925@gmail.com

Education: Punjab Univ.: BSc 43; Delhi Univ.: MSc 45; Bombay, UDCT: PhD 48; Univ. of Cambridge, UK: PhD 50.

Career: CDRI, Lucknow, Medicinal Chem. Dn: Sci. 51–64, Asst Dir, Dy Dir & Head 64–74, Dir 74–84, Sci. Emeritus 88; INSA, Sr Sci. 85–88; Harvard Medical School, USA: Rockfeller Foundation Fellowship Res. Assoc. 58–59.

Scientific Work: Designed new biodynamic agents, for fertility regulation, CNS and CVS disorders, parasitic diseases and for immunomodulation; devised new synthetic strategies for generation of molecular diversity needed for biological screening programs. The resulting new drugs include: Centbutindole, a neuroleptic, a D2 and 5HT2 antagonist, Bucricaine a local anaesthetic and Ormeloxifene, a SERM, for contraception and DUB; Ormeloxifene marketed as Saheli is in the national family planning program, and also registered as a contraceptive in some countries abroad. Based on the receptor binding studies, proposed a five contact point model for ligand binding at estrogen receptor, defining the subsite and the substitutions which introduce antiestrogensity. Showed that immunomodulators provide a useful interface between chemotherapy and immune protection, useful both to prevent and treat infections.

Important Publications: **(1)** Synthetical experiments in the chromone group. Part XXI. Synthesis of gentisin, the colouring matter of gentian root (1947) *Proc. Indian Acad. Sci. Sect. A* **25,** 438. **(2)** Studies in antifertility agents: Part XII – Structure activity relationship studies of 3,4-diphenylchromenes and chromans (1976) *J. Med. Chem.* **19,** 276. **(3)** Possible basis for structure function relationship of estrogens (1981) *Int. J. Quantum Chem.* **20,** 71. **(4)** Molecular diversity generation through reactive lactams (1997) *J. Ind. Chem. Soc.* **74,** 948. **(5)** QSAR studies in substituted 1,2,3,4,6,7,12,12a-octahydro-pyrazino-[2`,1:6,1]pyrido[3,4-b]indoles–A potent class of neuroleptics (2003) *Bioorg. Med. Chem.* **11,** 2085.

Memberships: Member: Scientific Advisory Committee to the Cabinet 81–83; Scientific & Tech. Advisory Committees of Tropical Diseases Res. and Human Reproduction Programme • Chmn: Indian Pharmacopoeia Committee 78–2005; CHEMAL, TDR, WHO; Sci Body, Indian Pharmacopoeia Commission 2005–; Ranbaxy Sci. Foundation 2004–.

Awards & Distinctions: Mody Research Award 71 • P C Ray Medal 71 • K G Nayak Gold Medal 72 • Acharya J C Ghosh Medal 74 • Acharya J B Chatterji Gold Medal 80 • Schroff Memorial Award 82 • National Nehru Award 92.

Ananthakrishna, Garani

Elected: 1995
Position: Emeritus Prof., Raja Ramanna Fellow, IISc, Bangalore
Specialization: Theoretical Materials Science; Condensed Matter; Dynamical Systems and Chaos
Date and Place of Birth: 11 December 1942; Anantapur, Andhra Pradesh
Parents: G V Raghavachar and Cheenamma
Spouse and Children: Jaya; two *s* (Abhay, Uday Raghavan)
Address: Materials Research Centre, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2780 (O), (080) 4167 4240 (R)
email: garani@mrc.iisc.ernet.in; URL: http://mrc.iisc.ernet.in/Faculty/Regular/GAK/GAK_Profile.htm

Education: Univ. of Mysore: BSc 63; Univ. of Bangalore: MSc 65; Univ. of Texas, USA: PhD 72.

Career: Bangalore Univ., Physics Dept: Lecturer 65–69; Univ. of Texas, Austin, USA, Dept of Physics: Res. Asst 69–72, Res. Assoc. 72–73; IISc, Bangalore, Dept of Physics: Res. Assoc. 74–75, Assoc. Prof. 96–; IGCAR, Kalpakkam, Materials Sci. Dn: Sci. Offr 75–90.

Scientific Work: Applied statistical and nonlinear dynamical methods to problems bordering materials science and condensed matter physics. Introduced new methods of approach for the first time like master equation approach to the problems such as clustering of point defects extended defects, dislocation dynamics, and bifurcation theory for study of instabilities in plastic flow. Pioneering work on Portevin–Le Chatelier effect in plastic instabilities. Made substantial contribution to electronic properties of quasi-crystals. Contributed to problems in chaos, stochastic processes, martensite transformation, dynamics of an adhesive tape, dynamics of stick-slip and friction.

Important Publications: **(1)** Repeated yield drop phenomena: A temporal dissipative structure (1982) *J. Phys.* **D15,** L171. **(2)** Current theoretical approaches to the collective behaviour of dislocations (2007) *Phys. Rep.* **440**, 113–259. **(3)** A dynamical approach to the spatiotemporal aspects of the Portevin–Le Chatelier effect: Chaos, turbulence and band propagation (2004) *Phys. Rev.* **E70**, 026111. **(4)** Dynamics of peeling front and the nature of acoustic emission during peeling of an adhesive tape (2006) *Phys. Rev. Lett.* **97,** 165503. **(5)** Acoustic emission and shape memory effect in the martensitic transformation (2003) *Phys. Rev. Lett.* **90**, 135501.

Memberships: Fellow: INSA 2007; Asia Pacific Soc. of Materials 2003.

Awards & Distinctions: Material Res. Soc. of India Medal 92 • Annual Superconductivity and Material Science Award 2003.

Ananthakrishnan, Ramakrishna Iyer*

Elected: 1938
Specialization: Light Scattering and Raman Effect; Solar Physics; Meteorology/Atmospheric Physics
Date and Place of Birth: 11 April 1911; Koovapadi, Palghat, Kerala
Parents: A Ramakrishna Iyer and Laxmi Ammal
Spouse and Children: Shakuntala; one *s*, two *d* (Sahadev, Seetha, Revathi)
Last Address: Flat No.9, Praram Apartments, Lakaki Road, Pune 411 016, India
***Deceased:** 21 July 1998

Education: Univ. of Madras: BA Hons 32, MA 36, DSc 37.

Career: IISc, Bangalore, Dept of Physics: Res. Scholar 33–37; India Meteorological Dept 37–71; Asst Meteorologist 37–43, Meteorologist 43–46; Solar Physics Observatory, Kodaikanal: Asst Dir 46–54; Regional Meterological Centres Nagpur, Bombay, Delhi: Dir 54–59, Dy Dir General 59–68; Indian Inst. of Tropical Meteorology, Pune: Dir 68–71; Hon. Fellow: 82–98; Cochin Univ.: Vis. Prof. 75–82.

Scientific Work: Comprehensive study of solar prominences revealed progression of prominence activity on the sun from equatorial to polar latitudes from sunspot maximum to minimum. Scientific work in meteorology/atmospheric physics are aerological diagrams, atmospheric thermodynamics, errors in upper air data, monsoon circulations, atmospheric pressure oscillations and tracks of storms and depressions in the Bay of Bengal and the Arabian Sea. Certain aspects of the Indian rainfall including diurnal and intra-seasonal variations, and features associated with southwest monsoon onset were studied and a climatological minimum in southwest monsoon rainfall around mid-August was identified.

Memberships: Fellow: INSA 61; Maharashtra Acad. of Sci., Indian Geophys. Union; Founder Member: Indian Meterol. Soc. 57.

Awards & Distinctions: Padma Shri 69 • C V Raman Centenary Medal 88.

Ananthakrishnan, Sekharipuram Venkateswaraiyer*

Elected: 1939
Specialization: Physical Organic Chemistry
Date and Place of Birth: 4 October 1908; Ponnani, Malabar
Parents: S Venkateswara Iyer
Spouse and Children: Rajalakshmi; two *s*, three *d*
Last Address: 10, Chittaranjan Road, Teynampet, Madras 600 018, India
***Deceased:** 17 January 1989

Education: Univ. of Madras: BA 28, BA Hons 30, MA 31; Univ. of London: PhD 34.

Career: Travancore Sugars Ltd: Chemist 34; Govt Test House, Calcutta: Chemical Asst; Annamalai Univ., Dept of Chem.: Chmn 37–42; Madras Christian College, Madras, Dept of Chem.: Lecturer 42–58.

Scientific Work: Research work mainly in the field of reaction kinetics. Initiated research work in such problems as bromination of olefins, oxidation of organic substrates and ester hydrolysis; also worked in such diverse areas like dipole moments and structure of molecules, diamagnetism and molecular structure, ultraviolet, infrared and Raman spectra and solvent influences on reaction rates.

Memberships: Fellow: Royal Soc. of Chem.; INSA 67.

Ananthakrishnan, Subramaniam

Elected: 1996
Position: Adjunct Prof. & Raja Ramanna Fellow, Pune Univ.
Specialization: Extragalactic Radio Astronomy; Sun and Solar Wind; Interferometry Techniques and Analog Electronics
Date and Place of Birth: 14 May 1944; Nagercoil
Parents: A Subramania Iyer and Kamalal
Spouse and Children: Sudha; two *d* (Malathi, Revathi)
Address: Electronic Science Department, Pune University, Ganeshkhind, Pune 411 007, India
Tel. (020) 2569 9841 (O), (020) 6609 4598 (R)
email: ananth@ncra.tifr.res.in, subra.anan@gmail.com

Education: Calcutta Univ.: BTech 65; Calcutta Univ.: MTech 66; Bombay Univ.: PhD 76.

Career: TIFR: Res. Scholar 66–71, Sci. Offr 71–75, Fellow 75–84, Reader 84–88, Assoc. Prof. 88–94; Full Prof. and Dean of NCRA Faculty 94–98; GMRT: Observatory Dir 2000–04, NCRA: Sr Prof. 2002–07, Pune Univ., Electronic Sci. Dept; Adjunct Prof. and Raja Ramanna Fellow 2007–.

Scientific Work: Made the first successful radio scintillation observations through plasma tail of Comet Kohontek in 1974. Developed new model for microturbulence in recurring solar wind streams. With P K

Manoharan, developed new technique for single station solar wind velocity estimation in 1989. Using Ooty radio telescope and telescopes in Europe, initiated India into global Very Long Baseline Interferometry (VLBI) in 1983. Involved in large scintillation survey to detect compact cores in radio sources. Deeply involved in the building and commissioning of GMRT during 1984–99, as its Project Sci. As the Observatory Director of GMRT during 2000–04, helped in opening GMRT as an international facility. Participated in one of the key observatory programmes on nearby galaxies. Along with Nimisha Kantharia and R Nityananda, studied tidal interaction in galaxy groups. Made the first solar observations with GMRT with Prasad Subramanian. Authored about 85 papers in national and international journals. During a long career of > 40 years, mentored many students in their MSc, BE projects and a few towards their PhD and helped universities such as Madurai and Gorakhpur to develop active interest in radio astronomy. Helping the Electronic Science Department of Pune University in setting up a high quality Antenna and RF Laboratory. Involved as Chair/reviewer/project board member in many new astronomy projects in the country like the Gauribidanur radio telescope, ASTROSAT, the 3.6 m optical telescope of ARIES in Devasthal and the 21 m MACE Gamma-ray Telescope in Hanle, Himalayas.

Important Publications: **(1)** Microturbulence in solar wind streams (1980) *J. Geophys. Res.* **85,** 6025. **(2)** Interstellar scattering in the inner parts of the galaxy (1984) *Nature* **312,** 707. **(3)** Determination of solar-wind velocities using single station measurements of interplanetary scintillation (1990) *Mon. Not. R. Astron. Soc.* **244,** 691. **(4)** The giant metrewave radio telescope (1991) *Curr. Sci.* **60,** 95. **(5)** Giant meter wave radio telescope observations of an M2.8 flare: Insights into the initiation of a flare-coronal mass ejection event (2003) *Sol. Phys.*, **218,** 247.

Memberships: Fellow: INSA 2004; NASI 94 • Chmn: URSI Radio Astronomy Commission 2008–11; Joint National Committee for COSPAR, URSI and SCOSTEP (2008–2012).

Awards & Distinctions: Sir C V Raman Gold Medal of Jagadish Bose National Science Talent Search.

Ananthakrishnan, Taracad Narayanan

Elected: 1975
Specialization: Entomology; Cecidology; Chemical Ecology
Date and Place of Birth: 15 December 1925; Mangalore, Karnataka
Spouse and Children: Menaka; one *s*, one *d*
Address: Flat 6, Dwaraka, 22, Kamdar Nagar, Nungambakkam, Chennai 600 034, India
Tel. (044) 2817 0682 (R)
email: ananththrips@yahoo.com

Education: Madras Christian College, Madras: BSc Hons; Univ. of Madras: MSc, PhD, DSc.

Career: Loyola College: Prof. & Head of Dept of Zoology; Zoological Survey of India, Calcutta: Dir; Entomology Res. Inst., Loyola College, Madras: Dir.

Scientific Work: Research related to taxonomy and biosystematics of Thysanoptera with special emphasis on thrips-crop-weed interactions and thrips-fungal interactions. Chemical ecology in insect-plant interactions with special reference to resistance mechanisms in host plants and the role of volatiles in the behavioural dynamics of phytophagous insects; tritrophic interactions in biological control of insects, specially the role of kairomones. Litter microarthropod dynamics in natural forest ecosystems and monoculture stands with special reference to trophic systems and the role of volatiles in community ecology of insects. Studies on patterns of polymorphism in mycophagous thrips communities revealed intricacies of biological diversity in natural ecosytems. Cecidological studies involving thrips as gall makers have contributed considerably to our knowledge of Cecidology.

Important Publications: **(1)** *Indian Thysanoptera* (1969) CSIR Monograph. **(2)** *Bioresources ecology* (1989) Oxford, IBH **(3)** *Bioecology of thrips* (1984) India Publishing House, Michiegan **(4)** *Ecological entomology* (2008) Scientific Publishers.

Memberships: Fellow: INSA 77; Natl Acad. of Agri. Sci.; Natl Inst. of Ecology 80.

Awards & Distinctions: Rafi Ahmed Kidwai Award 72 • Sundarlal Hora Medal 99 • Dr K C Mehta Memorial Award 99 • Pitamber Pant National Environment Fellowship of Ministry of Environment and Forests 96 • J C Bose Memorial Award 99 • INSA Golden Jubliee of Medal 2009.

Ananthanarayanan, L K*

Elected: 1967
Specialization: General Surgery; Orthopaedics
Date of Birth: 17 December 1916
Last Address: Office of Director, General Armed Forces Medical Services,
Ministry of Defence, M Block, Church Road, New Delhi 110 001, India
***Deceased:** 1978

Education: Madras Univ.: MBBS, MS, FACS, FICS; Poona Univ.: PhD; Univ. of London: FRCS.

Career: Armed Force Medical College, Poona, Operative Surgery Dept: Assoc. Prof.; Artificial Limb Centre: Commandant, Sr Surgeon.

Scientific Work: Substantially contributed to the science and art of surgery both in war and peace. Also contributed to the science of prosthetics and biomechanics and connected reconstructive surgery. Helped in indigenous substitutes replacing imported material. Internationally recognized for work on rehabilitation of physically disabled with particular reference to that of the amputees.

Anantharamaiah, Kuduvalli Ramaswamaiah*

Elected: 1994
Specialization: Radio Astronomy; Interstellar Medium; Galaxies; Radio Spectroscopic Studies of Diffuse Matter in Interstellar Space
Date and Place of Birth: 2 September 1952; Kuduvalli, Karnataka
Parents: K Ramaswamaiah and K R Jayamma
Spouse and Children: Jyotsna; one *s*
Last Address: Raman Research Institute, C V Raman Avenue, Sadashivanagar, Bangalore 560 080, India
***Deceased:** 29 October 2001

Education: Mysore Univ.: BSc 71, MSc 73; Bangalore Univ.: PhD 84.

Career: RRI, Bangalore: Jr Sci. Asst 74–84, Sci. 84–89, Assoc. Prof. 92–97; Prof. 97–2001; National Radio Astronomy Observatory, USA: Postdoc Res. Assoc. 86–89.

Scientific Work: Obtained a sensitive upper limit to the abundance of deuterium in the direction of the galactic centre, a comprehensive survey of radio spectral lines near 325 MHz arising from low-density ionized hydrogen regions in the galaxy, observations of transitions between very high Rydberg states of carbon in cold interstellar clouds and demonstration for the first time of stimulated emission of carbon lines at metre wavelengths, observation of low-frequency (327 MHz) radio continuum emission from the galactic centre region establishing the relative locations of different sources, demonstrating the nature of spatial coherence in the radio radiation scattered in the solar wind plasma using high time resolution radio interferometry, providing an understanding of the behaviour of source-noise in radio synthesis images and detection and study of centimetre wavelength recombination lines from a number of starburst galaxies.

Memberships: Member: Intl Astronomical Union.

Awards & Distinctions: IASc Assoc. 83–87.

Anantharaman, Tanjore Ramachandra*

Elected: 1964
Specialization: Physical Metallurgy; Materials Technology; India's Scientific Heritage
Date and Place of Birth: 25 November 1927; Tanjore, Tamil Nadu
Parents: T A Ramachandran and Saradambal
Spouse and Children: Priyamvada Tripathi; two *s*, one *d* (Satya, Prem, Karuna)
Last Address: Kula-Acharya, Ashram-Atma Deep,
P. B. No. 3, G-9/14, DLF City, Gurgaon 122 022, India
***Deceased:** 18 June 2009

Education: Madras Univ.: BSc Hons 47; IISc, Bangalore: DIISc 50, MSc 51; Oxford Univ.: DPhil 54, DSc 90.

Career: IISc, Bangalore, Metallurgy Dept: Asst Prof. 56–62; BHU: Prof. of Metallurgy 62–87; CSIR: Emeritus Sci 88–89, 92; Thapar Corporate Res. & Development Centre, Patiala: Dir 89–92.

Scientific Work: Research achievements are mainly in the area of structure, structural changes and structural imperfections in metals and alloys, particularly in non-equilibrium conditions. Pioneered research in India in rapidly solidified metals. Contributions also include studies on quasicrystals based on aluminium.

Important Publications: **(1)** *Metallic glasses: Production properties and applications* (1984) **(2)** *Rapidly solidified metals: A technological overview* (1987) **(3)** *The rustless wonder: A study of the iron pillar at New Delhi* (1996) **(4)** *Metal science: The emerging frontiers* (1978) **(5)** *Light metals: Science and technology* (1985)

Memberships: Fellow: INSA 72; INAE 87; London Inst. of Metallurgists 68; Inst. of Engg, India; American Soc. of Materials 90.

Awards & Distinctions: Kamani Gold Medal 60 • National Metallurgists Day Award 64 • S S Bhatnagar Prize 67 • FICCI Award 72 • Homi J Bhabha Award 74 • Vasvik Award 78 • S S Bhatnagar Medal 82 • Tata Gold Medal 83 • INSA Prize for Materials Science 87 • Andrew Clifton Sorby Award 89.

Anguli, Vazhapat Chinnaswami*

Elected: 1962
Specialization: Neuropathology; Experimental Pathology; Onco-pathology
Date and Place of Birth: 25 October 1919, Madras
Parents: V S Chinnaswamy Iyengar and Thangammal
Spouse: S R Bhashyam
Last Address: Diagnostic Services Research and Training Centre, T36/2, 14, 1st Avenue, Besant Nagar, Madras 600 090, India
***Deceased:** 22 July 2000

Education: Madras Univ.: BSc 39, MBBS 45, MD 54.

Career: General Hospital, Madras: House Surgeon 46–47, Sr House Surgeon 47–49; Madras Medical College, Dept of Pathology: Asst Prof. 50–58, Prof. 58, Dir; Asian Hospital, Andhra Mahila Sabha: Consultant; Cancer Inst., Madras: Prof. of Pathology 83; Also served as Dir, Diag. Services Res. and Training Centre, Madras.

Scientific Work: Research on ileocolic tuberculosis and non-specific ulceration, supported by bacteriological evidence and experimentation by which the pathogenesis of non-specific ulceration has been detailed. Developed histochemical staining techniques in diagnostic histopathology in Madras. Worked on rare mycotic infections.

Memberships: Fellow: London Royal College of Pathologists.

Awards & Distinctions: Nayar's Gold Medal • Balfour's Memorial Gold Medal • Chipperfield Gold Medal • Bradfield Memorial Gold Medal • G V James Prize.

Anil, Kumar

Elected: 1987
Position: Prof., Ramanna Fellow (DST), IISc, Bangalore
Specialization: Nuclear Magnetic Resonance Spectroscopy: Developments in the Techniques of NMR and their Applications to the Study of Biomolecules and Applications of NMR to Quantum Computing.
Date and Place of Birth: 25 June 1941; New Delhi
Parents: Shiam Lal and Savithri Devi
Spouse and Children: Padma; one *s* and one *d* (Ankur Kumar and Pankaja Kumari)
Address: Department of Physics and NMR Research Centre, Indian Institute of Science,
Bangalore 560 012, India
Tel. (080) 2293 2724, (080) 2360 7344 (O), (080) 2366 2757 (R), Mobile: 98454 21938
email: anilnmr@physics.iisc.ernet.in; URL: http://sif.iisc.ernet.in/anil

Education: Meerut College, Meerut, UP: BSc 59, MSc, 61; IIT Kanpur: PhD 64–69.

Career: Meerut College, Meerut: Lecturer in Physics 61–64; Ga. Tech., Atlanta, USA: Postdoc 69–70; Ernst and Prof. Wuthrich, Univ. of North Carolina at Chapel Hill, USA: Postdoc, 70–72; Univ. of Michigan, Ann Arbor, USA 98–99; Res. Assoc., ETH, Zurich: 73–76 with Prof. R R Ernst; 79–80 jointly with Prof. Ernst and Prof. Wuthrich; Indian Institute of Science: Sr Sci. Offr 77–82, Asst Prof. 82–84, Assoc. Prof. 84–90, Prof. 90–2003 (Apr–June), Chmn, Dept of Physics 94–97; NMR Facility: Resident-in-Charge 77–82, Joint Convener 84–94, Convener 98–2003; Univ. of North Carolina, Chapel Hill, USA: Vis. Prof., 89–90; Indiana Univ.–Purdue Univ., IISc: 94–97; Indianapolis, USA Dec 94; Chaire Condorcet at Ecole Normale Superieure, Paris, France (Apr–June) 98; MSIL Prof.

Scientific Work: Developed the method of Fourier NMR imaging with others; has been responsible for the development of MRI to its present pre-eminence in human clinical radiology. Associated with the development of the methodology of two-dimensional NMR right from its beginning. Did the first two-dimensional NMR experiment (NOESY) in proteins, which opened the possibility of obtaining the three-dimensional structures of non-crystalline proteins in solution by NMR. Started and looked after the first high-field NMR research facility being established in India in 1977. Area of research: Double resonance techniques in NMR, developments in two-dimensional NMR spectroscopy, study of strongly coupled spins and molecules partially oriented in liquid crystal matrices, relaxation studies, study of cross-correlations in NMR, developments in solid-state NMR, pure NQR studies using two-dimensional techniques and most recently, applications of NMR to quantum computing (QC) and quantum information processing (QIP).

Important Publications: **(1)** Transient oscillations in NMR cross-polarization experiments in solids (1974) *Phys. Rev. Lett.* **32**, 1402. **(2)** NMR-Fourier-Zeugmatography (1975) *J. Magn. Reson.* **18**, 69. **(3)** Two-dimensional spin-echo NMR spectroscopy: A general method for calculation of spectra (1978) *J. Magn. Reson.* **30**, 227. **(4)** A two-dimensional nuclear Overhauser enhancement (2D NOE) experiment for the elucidation of complete proton-proton cross-relaxation networks in biological macromolecules (1980) *Biochem. Biophys. Res. Commun.* **95**, 1. **(5)** Cross-correlations in NMR (2000) *Prog. Nucl. Magn. Reson. Spectrosc.* **37**, 191–319.

Memberships: Fellow: NASI 89; INSA 91; TWAS 97; Intl Soc. Magnetic Resonance (ISMAR) 2009 • Life Member: The Indian Physical Soc.; Indian Science Congress Assn; National Magnetic Resonance Soc. • Member: American Physical Soc. 76–99.

Awards & Distinctions: Worked with and contributed towards Chemistry Nobel Prize winning works of R R Ernst and K Wuthrich • Sir C V Raman Award for Research in Physical Sciences • Hari Om Ashram Trust Award 93 • Platinum Jubilee Lecture Award Indian Science Congress Assn 94 • Prof. K Rangadhama Rao Memorial Lecture

Award 96 • FICCI Award for Physical Sciences including Mathematics 96–97 • Alumni Award, IISc for Excellence in Research in Science 2000 • The Goyal Prize in Chemistry 2001 • DAE-Raja Ramanna Prize Lecture in Physics 2003 • Prof. J C Ghosh Memorial Award 2006.

Anil Kumar

Elected: 2001
Position: Sci., NCL, Pune
Specialization: Chemical Thermodynamics; Physical Organic Chemistry; Biophysical Chemistry
Date and Place of Birth: 31 December 1955; Bijnor, Uttar Pradesh
Parents: Anand Swarup
Spouse and Children: Vaijayanti; one child
Address: Physical Chemistry Division, National Chemical Laboratory, Pune 411 008, India
Tel. (020) 2590 2278 (O), (020) 2588 8712 (R), Mobile: 98220 74509
email: a.kumar@ncl.res.in

Education: Rohilkhand Univ.: BSc 75, MSc 77; NCL, Pune: PhD 81.

Career: NCL, Pune: JRF/SRF 78–81; Univ. of Oklahoma, USA: Postdoc Fellow 81–83; NCL, Pune: Pool Offr 83–85; Univ. of Karlsruhe: Humboldt Fellow 85–86; Deccan Sugar Inst.: Lecturer 87–90; NCL, Pune: Sci. 90.

Scientific Work: Fundamental concepts of physical chemistry have been employed to delineate origin of forces responsible for the rate variation of organic reactions in unusual solvent media.

Important Publications: **(1)** Unusual temperature dependence of salt effects for 'on water' Wittig reaction: hydrophobicity at the interface (2008) *Chem. Comm.* 4445. **(2)** Homogeneous nucleation temperatures in Aqueous mixed salt solutions (2007) *J. Phys. Chem.* **B111**, 37, 10985. **(3)** Diels-Alder reactions are faster in water than in ionic liquids at room temperature (2006) *Angew. Chem. Intl. Ed* **45**, 29, 4824. **(4)** Hydrophobic effects are dominant over secondary orbital interactions for a simple Diels-Alder reaction in salt solutions (2006) *Org. Lett.* **8**, 10, 2199 **(5)** Reassessment of the binary, ternary, and quaternary interactions in mixed electrolytes from thermodynamic quantities: The systems with uncommon ions containing hydrophobic character (2005) *J. Phys. Chem.* **B109**, 23, 11743.

Memberships: Fellow: Maharashtra Acad. of Sci. 94.

Awards & Distinctions: Shirgaonkar Memorial Award 91 • NCL Research Foundation 'Best Paper' Award in Biological Sciences 95.

Anil Kumar

Elected: 2008
Position: Sci., NGRI, Hyderabad
Specialization: Isotope Geochemistry; Paleomagnetism
Date and Place of Birth: 18 September 1955; Secunderabad
Parents: Kishen Narayan and Rukmini
Spouse and Children: Kalpana; one *s*, one *d*
Address: National Geophysical Research Institute, Uppal Road, Hyderabad 560 007, India
Tel. (040) 2343 4790 (O), (040) 2343 4785 (R)
email: anilkumar@ngri.res.in

Education: Osmania Univ., Hyderabad: BSc 77, MSc 79, PhD 84.

Career: NGRI: Sci. 87–.

Important Publications: **(1)** Phlogopite K-Ca dating of Narayanpet kimberlites, South India: Implications to the discordance between their Rb-Sr, Ar/Ar ages (2008) *Precambrian Res.* **67**, 377. **(2)** New REE and trace element data on kimberlitic reference materials by ICP-MS. (2007) *Geostandards Newsletters* **31**, 261–273. **(3)** Paleomagnetism and U-Pb geochronology of easterly trending dykes in the Dharwar craton, India: Feldspar clouding, radiating dyke swarms and the position of India at 2.37 Ga. (2007) *Precambrian Res.* **155**, 47–68. **(4)** Mesoproterozoic kimberlites in South India and a possible link to ~1.1 Ga global kimberlite magmatism. (2007) *Precambrian Res.* **154**, 192–204. **(5)** Noble gases in South Indian carbonatites: Trapped and *in situ* components. (2007) *Asian J. Earth Sci.* **30**, 154–169.

Awards & Distinctions: M S Krishnan Gold Medal, Indian Geophysical Union 95 • Physical Research Laboratory Award for outstanding contributions in Earth and Planetary Sciences 99 • National Mineral Award 2006.

Anil Kumar*

Elected: 1995
Specialization: Experimental Condensed Matter Physics;
Physics of Complex Fluids; Statistical Physics
Date and Place of Birth: 10 April 1951; Jalandhar, Punjab
Parents: Som Datt Sharma and Vijayalakshmi
Spouse and Children: Mythily; one *d*
Last Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 2 November 2002

Education: Panjab Univ., Chandigarh: BSc 71, MSc 73, Dip. in Applied Physics: 74; IISc, Bangalore: PhD 79.

Career: Univ. of Pittsburgh, USA, Dept of Physics: Res. Assoc. 79–81; Univ. of California, USA, Dept of Physics & Chemistry: Vis. Res. Physicist 81–84; IISc, Bangalore: Sr Res. Fellow 85–87, Asst Prof. 87–93, Assoc. Prof. 93–98, Prof. 98; Univ. of Pittsburg, Univ. of Santa Barbara, USA: Postdoc.

Scientific Work: Developed a number of experimental techniques to unearth and characterize multicritical points in ternary and quaternary liquid mixtures. Endeavours led to a deeper comprehension of the nature of the following multicritical points: tricritical point, double critical point and quadruple critical point. Was instrumental in uncovering the reversible flocculation of colloids in reentrant liquid mixtures. This research has opened up an entirely new field – both from analytical and experimental standpoints. Performed the first set of experiments that were directed at quantifying the unusually large $1/f$ noise near a consolute (T) in binary fluid mixtures. This research also gave decisive evidence regarding the effects of shear flow near T and confirmed the calculations based on nonequilibrium steady state.

Important Publications: **(1)** Electrical conductivity fluctuations in binary liquid mixtures near the critical point: The effects of fluid flow (1982) *Phys. Rev. A.* **26**, 1580. **(2)** Equilibrium critical phenomena in binary liquid mixtures (1983) *Phys. Rep.* **98**, 57; Reentrant phase transitions in multicomponent liquid mixtures (1994) *Phys. Rep.* **249**, 135. **(3)** Reverse focculation of silica colloids in liquid mixtures (1993) *Phys. Rev. E* **48**, 1989. **(4)** Crossover from Ising to mean-field critical behaviour in a aqueous electrolyte solution (1998) *Phys. Rev. E* **58**, 2188. **(5)** Exploration of a quadruple critical point in a quaternary liquid mixture (1995) *J. Chem. Phys.* **102**, 9653.

Awards & Distinctions: IISc Martin–Forster Medal 79.

Antia, Hormazad Maneck

Elected: 1999
Position: Sr Prof., TIFR, Mumbai
Specialization: Solar Physics; Helioseismology; Numerical Techniques
Date and Place of Birth: 6 November 1955; Indore, Madhya Pradesh
Parents: M B Antia and N M Antia
Address: Astrophysics Group, Tata Institute of Fundamental Research, Homi Bhabha Road,
Mumbai 400 005, India
Tel. (022) 2278 2514 (O)
email: antia@tifr.res.in; URL: http://www.tifr.res.in/~antia

Education: Indore Univ.: BSc 73; IIT Mumbai: MSc 75; Mumbai Univ.: PhD 79.

Career: TIFR: Res. Assoc. 79–84, Fellow 84–90, Reader 90–94, Assoc. Prof. 94–98, Prof. 98–2008, Sr Prof. 2008.

Scientific Work: Mainly working on problems related to convection and oscillations in the Sun and other stars. With the availability of accurately measured frequencies of solar oscillations during the last decade, the emphasis of work has shifted to helioseismology, or studying the internal structure and dynamics of the Sun using these frequencies. Actively involved with the Global Oscillations Network Group (GONG) project, which is managed by the National Solar Observatory, Tucson, USA and includes one station at the Udaipur Solar Observatory. Data from GONG and other helioseismology projects has been analysed and interpreted. Extensive inversion techniques were developed to infer the sound speed, density, temperature and chemical composition inside the Sun from the observed frequencies. These have been used to test physical input to the theoretical solar models, like the equation of state, opacities, nuclear reaction rates as well as for determining the abundance of helium and heavy elements. With the availability of helioseismic data for over 12 years, the solar cycle variations in structure and rotation rate have been studied in detail.

Important Publications: **(1)** *Numerical methods for scientists and engineers* (2002) Hindustan Book Agency, New Delhi. **(2)** Helium abundance in the solar envelope (1995) *Mon. Not. R. Astron. Soc.* **276**, 1402–1408. **(3)** Estimate of solar radius from f-mode frequencies (1998) *Astron. Astrophys.* **330**, 336–340. **(4)** Temporal variations of the rotation rate in the solar interior (2000) *Astrophys. J.* **541**, 442–448. **(5)** Helioseismology and solar abundances (2008) *Phys. Rep.* **457**, 217–283.

Memberships: Fellow: INSA 2008.

Awards & Distinctions: IASc Assoc. 86–90 • Hari Om Ashram Prerit Vikram Sarabhai Award for Space Sciences 99.

Appajee, Y*

Elected: 1939
Specialization: Medicine; Anatomy
Date of Birth: 25 March 1904
Parents: Yale Nirvanappa and Nangamma
Spouse and Children: Hymavathi; three *s*, four *d*
Last Address: Department of Anatomy, Medical College, Mysore
***Deceased:** 5 August 1984

Education: BA, MBBS, MSc.

Career: Medical College, Mysore, Dept of Anatomy: Prof.

Awards & Distinctions: President: Seventh Annual Conf., Anatomical Soc. of India, Madras 57.

Appaji Rao, Naropantul

Elected: 1980
Specialization: Biochemistry; Enzyme Regulation; Inborn Errors of Metabolism
Date and Place of Birth: 24 September 1934; Madras, Tamil Nadu
Parents: N P Vittal Rao and N Rakuma Bai
Address: 9, Sharada Colony, Basaveshwara Nagar, Bangalore 560 079, India
Tel. (080) 2360 1561, (080) 2293 2310 (O), (080) 2348 6560 (R), Mobile: 96118 35935
email: bcnar@biochem.iisc.ernet.in

Education: Madras Univ.: BSc 54; Rajputana Univ.: MSc 56, Rajasthan Univ.: PhD 59.

Career: Univ. of Washington, Seattle, USA: Res. Assoc. 60–62; Scripps Clinic and Res. Foundation, USA: Res. Assoc. 62–64; Univ. of Nagoya, Japan, Faculty of Medicine: Vis. Assoc. Prof. 71; Inst. of Applied Biochem. Yagi Memorial Park, Japan: Vis. Sci. 72, 74, 84, 94; Vis. Prof. 80–82; Brigham Young Univ., USA: Vis. Prof. 75; New York

Univ., USA, Dept of Medicine: Vis. Prof. 76; IISc, Bangalore, Dept of Biochem.: Lecturer 65–69, Asst Prof., Assoc. Prof., Prof. 69–95, Chmn, Dean of Science Faculty 94, CSIR Emeritus Sci. 95–97, UGC Emeritus Sci. 97–99.

Scientific Work: Made outstanding contributions towards the understanding of the mechanisms of allosteric regulation of oligomeric and monomeric enzymes, especially of plant aspartate transcarbamylase, glutamine synthetase and flavokinase; elucidation of the pathways of oxygen activation in aromatic amino acid metabolism; establishing the mechanisms of drought tolerance in plants. Carried out exhaustive and in depth studies on serine hydroxymethytransferase, a target for cancer chemotherapy. A combination of methods including enzyme kinetics, spectroscopy, crystallography and site-directed mutagenesis, lead to the discovery of several new facets of enzyme function and novel reaction mechanisms of catalysis. Another very significant research work, with profound social significance relates to the consequences on the health and reproductive performance of populations practising marriages between close kin, a practice common in South India and several parts of the world. This work led to allaying several myths and fears in many millions of families spread over half of the world about the deleterious effects of consanguinity.

Important Publications: **(1)** On the occurrence of flavokinase activity in plants (1957) *Nature* **179**, 1134–1135. **(2)** Flavin mononucleotide: The coenzyme of DPNH dehydrogenase (1963) *J. Biol. Chem.* **238**, 449–455. **(3)** Cooperative interactions of tetrahydrofolate with purified pig kidney serine transhydroxymethylase and loss of this cooperativity in L1210 tumours and in tissues of mice bearing these tumours (1976) *Proc. Natl Acad. Sci. USA* **73**, 1950–1953. **(4)** Reproductive behaviour and health in consanguineous marriages (1991) *Science* **252**, 789–794. **(5)** Importance of tyrosine residues of *Bacillus stearothermophilus* serine hydroxymethyltransferase in cofactor binding and L-allo-Thr cleavage (2008) *FEBS J.* **275**, 4606–4609.

Memberships: Fellow: INSA 84 • Member: FAOB and IUBMB Council; Poland Acad. of Art and Sci.

Awards & Distinctions: Sreenivasaiah Memorial Award 80 • J C Bose Medal 90 • Jawaharlal Nehru Birth Centenary Lecture Award 2001 • Dupon-Solae Lifetime Achievement Award 2002 • Distinguished Alumni Award, IISc 2008.

Apte, Shree Kumar

Elected: 2008
Position: Assoc. Dir, Biomedical Group and Head, Molecular Biology Division, BARC, Mumbai
Specialization: Molecular Biology and Biotechnology; Physiology and Biochemistry; Stress Biology of Bacteria and Plants
Date and Place of Birth: 18 October, 1952; Gwalior, Madhya Pradesh
Parents: Pundareekaksh Govind Apte and Sulochana Pundareekaksh
Spouse and Children: Nutan; two *d* (Swati, Prajakta)
Address: Molecular Biology Division, Bhabha Atomic Research Centre, Trombay, Mumbai 400 085, India
Tel. (022) 2559 5342, 2550 5189 (O), (022) 2558 0177 (R), Mobile: 98694 80205
email: aptesk@barc.gov.in, sksmbd@barc.gov.in, aptesk@yahoo.com

Education: Jiwaji Univ., Gwalior: BSc 70, MSc 72; BARC: Training Schools Graduate Biology and Radiology 73 Gujarat Univ., Ahmedabad: PhD 84; Univ. of Chicago, Dept of Molecular Genetics & Cell Bio.: Postdoc work 87–88.

Career: BARC: Sci. Offr C 73–78; Univ. of Dundee, UK: IAEA Fellow 76–77; BARC: Sci. Offr 78–83, Sci. Offr/E 83–89; BARC: Sci. Offr 83–2005, Head Mol Biol. 2002–, Outstanding Sci. 2005– ; Assoc. Dir, Biomedical Group 2006–; Univ. of Chicago: Res. Assoc. 88–89; Univ. of Sussex: Nuffield Fellow 2004.

Scientific Work: Molecular basis of tolerance of nitrogen-fixing cyanobacteria to salinity, osmotic, heat, and nutrient deficiency. Gene proteins involved in stress tolerance, perception of deficiency signals and regulation of stress responses. Elucidation of novel mechanisms of protein recycling, DNA repair, unique antioxidants underlying extreme radioresistance of *Deinococcus radiodurans* to ionizing radiation. Genetic engineering of cyanobacteria for enhanced nitrogen biofertilizer potential in stressful environments. Genetic engineering of *Deinococcus* and other bacteria for bioremediation of nuclear waste. Co-ordinated ecological studies to assess impact of thermal effluents from nuclear power plants on aquatic ecosystems.

Important Publications: **(1)** Protein recycling is a major component of post-irradiation recovery in *Deinococcus radiodurans* strain R1 (2004) *Biochem. Biophys. Res. Commun.* **320**, 1112–1117. **(2)** Differential expression of the two kdp operons in the nitrogen-fixing cyanobacterium *Anabaena* sp. strain L-31 (2005) *Appl. Env. Microbiol.* **71**, 5297–5303. **(3)** Engineering *Deinococcus radiodurans* R1 for bioprecipitation of uranium from dilute nuclear waste. (2006) *Appl. Env. Microbiol.* **72**, 7873–7878. **(4)** Involvement of a periplasmic protein kinase in DNA strand break repair and homologous recombination in *Escherichia coli* (2007) *Mol. Microbiol.* **65**, 294–304. **(5)** Nitrogen status and heat-stress-dependent differential expression of cpn60 chaperonin gene influences thermotolerance in the cyanobacterium *Anabaena* (2008) *Microbiol.* **154**, 317–325.

Memberships: President and Life Member: Indian Soc. of Cell Biology • Member: Intl Soc. of Plant Molecular Biology.

Awards & Distinctions: J V Bhat Eureka Forbes Award 90 • Intl Cyanobacterial Biotechnology Symposium Young Scientist Award 96 • Award of Indian Nuclear Soc. 2007 • Krishna Shai Bilgrami Memorial Medal 2007 • DST J C Bose National Fellow 2009.

Arakeri, Vijay Hanumappa

Elected: 1991
Position: Prof., IISc, Bangalore
Specialization: Cavitation; Hydrodynamics; Two-phase Flows
Date and Place of Birth: 9 August 1945; Amalzari, Karnataka
Parents: Hanumappa Ramappa Arakeri and Gangubai
Spouse and Children: Hemalatha; one s (Navanit)
Address: Department of Mechanical Engineering,
Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2670 (O), (080) 2367 2267 (R)
email: vijay@mecheng.iisc.ernet.in

Education: Utah State Univ., USA: BS 67; California Inst. of Technol., USA: MS 68, PhD 72.

Career: California Inst. of Technol., USA: Res. Fellow 72–74; Univ. of California, USA: Asst Res. Engg and Adjunct Asst Prof. 74–76; Netherlands Ship Model Basin, Holland: Vis. Sci. 76–77; Pennsylvania State Univ., USA: Res. Assoc. 77; IISc, Bangalore: Asst Prof. 77–82, Assoc. Prof. 82–87, Prof. 87–; Univ. of Minnesota, USA: Vis. Assoc. Prof. 85–86; Florida State Univ., USA: Vis. Faculty 2000–02.

Scientific Work: Developed the water tunnel facility at IISc into a frontline research facility for studies in cavitation and under water acoustics with naval applications. Conducted original research including studies with synthetic cavitation, noise characteristics of marine propellers and flow noise. Also worked in the areas of sonoluminescence and bubble plumes.

Important Publications: **(1)** Some investigations on the use of ultrasonics in travelling bubble cavitation control (2004) *J. Fluid Mech.* **504**, 365–389. **(2)** On the use of microjets to suppress turbulence in a Mach 0.9 axisymmetric jet (2003) *J. Fluid Mech.* **490**, 75–98. **(3)** Measured pulse width of sonoluminescence flashes in the form of resonance radiation (1998) *Phys. Rev. E* **58**, R2713–R2716. **(4)** Observations on transition in plane bubble plumes (1993) *J. Fluid Mech.* **254**, 363–374. **(5)** Studies on scaling of flow noise received at the stagnation point of an axisymmetric body (1991) *J. Sound and Vibration* **146**, 3, 449–462.

Awards & Distinctions: Melville Medal and Robert T Knapp Award 74 • Alumni Award for excellence in research (Engineering), IISc 2004.

Arora, Baldev Raj

Elected: 2005
Position: Dir, Wadia Inst. of Himalayan Geology, Dehradun
Specialization: Electromagnetic Geophysics; Seismotectonics; Geomagnetism
Date and Place of Birth: 10 October 1947; Dehradun, Uttaranchal
Parents: Amir Chand and Shakuntla Devi
Spouse and Children: Vijay Laxmi; one *s* one *d* (Aakash, Anuja)
Address: Wadia Institute of Himalayan Geology, 33, GMS Road, Dehradun 248 001, India
Tel. (0135) 252 5103, 262 7942 (O), (0135) 262 0276 (R), Mobile: 98973 91661
email: arorabr@wihg.res.in

Education: Agra Univ.: BSc 66; Banaras Hindu Univ.: MSc 68; Bombay Univ.: PhD 77.

Career: India Meteorological Dept, New Delhi: Professional Asst 69–71; Indian Inst. of Geomagnetism, Navi Mumbai: Res. Assoc. 71–77, Fellow 78–82, Reader 83–86, Assoc. Prof. 87–91; Prof. 92–2003, Prof. F & Head, Solid Earth Geomagnetism Dn 97–2002; Wadia Inst. of Himalayan Geology, Dehradun: Dir 2003.

Scientific Work: Instrumental in introducing geomagnetic depth soundings and magnetotelluric studies in the Indian geophysical scene. Numbers of conductive structures mapped by studies provide evidence on the extension of Indian shield structures into the frontal Himalaya (trans-Himalayan conductor), tracking relics of plume-lithospheric interaction in the Indian ocean (south India offshore conductivity anomaly). The low resistivity mid-crustal layer interpreted as partial melt zone beneath Ladakh batholith highlights role of channel flow model in explaining the puzzle of inverse metamorphism in the higher Himalaya. Nature of conductivity distribution in the seismically active belts has served as useful proxy in tracking the fluid-induced rheological transitions and thus, explains the space-depth distribution of seismicity. More recent accomplishments have been the establishment of Multi-Parameter Geophysical Observatory, first of its kind in India, for earthquake precursory research as well as VSAT-linked seismometer array in Uttaranchal Himalaya for real time monitoring of earthquakes.

Important Publications: **(1)** Geomagnetic variations at low latitudes (1992) *Mem. Geol. Soc. India* 24 **(2)** *Natural source electromagnetic induction in the earth* (1997) New Age Publishers, New Delhi. **(3)** Indian continental lithosphere: Emerging research trends (2003) *Mem. Geol. Soc. India*, 53. **(4)** Studies of equatorial electrojet from ground and space data (2003) *J. Atmos. Solar Terr. Phys.*, Elsevier, 65. **(5)** Deep resisitivity structure of the Indian northwestern Himalaya and its tectonic implications (2007) *Geophys. Res. Lett.* **34**, L04307

Memberships: Exec. Council Member: Intl Assn of Geomagnetism & Aeronomy 2002–03 • Chair and Co-chair: Interdivision Commission for Developing Countries, IAGA 95–2003.

Awards & Distinctions: National Mineral Award 2002 • Schimdt Medal, Russian Acad. of Science 2007 • 2nd Electrotek and Geometrics Endowment Medal, Indian Geophysical Union.

Arunachalam, Vaidheeswara

Elected: 1993
Specialization: Quantitative and Population Genetics; Plant Breeding; Biodiversity
Date and Place of Birth: 28 January 1938; Tiruchirappalli, Tamilnadu
Parents: S Vaidheeswara Iyer and Subbalakshmi
Spouse: Rajalakshmi; one *d* (Lavanya)
Address: Flat 1, Rams Bridgeview Apartments, 3, Central Avenue Road,
Kodambakkam, Chennai 600 024, India
Tel. (044) 2472 4198 (R), Mobile: 94449 20031
email: vaiarunachalam@hotmail.com

Education: Univ. of Madras: MA 59; Univ. of Cambridge: PhD 70.

Career: Indian Agriculture Res. Inst., New Delhi: Sr Res. Asst 60–67, Sr Sci. 71–77, National Fellow 78–90, Principal Sci. 90–98; M S Swaminathan Res. Foundation: Distinguished Fellow and Program Adviser 98–2008.

Scientific Work: Pioneer user of Mahalanobis' D^2-statistic to measure genetic divergence and developed software used in India and abroad; first to demonstrate theoretically the changes in linkage disequilibrium under natural selection; first to derive using a novel symbolic algebra approach an expression for heterosis for traits governed by two linked genes; pioneering work to define limits to parental genetic divergence to obtain heterosis; a method to make decisions on a number of dependent traits in plant breeding; participatory plant breeding with Orissa tribal communities through which was first to evolve a tribal rice landrace, Kalajeera into a commercial variety; village gene-seed-grain concept based village seed banks in tribal areas; concept of participatory conservation of agro-diversity and first implementation by tribal people in Koraput district of Orissa; new approach to quantification and analysis of narrative responses of tribal people to questionnaire on knowledge survey leading to the book, *Knowledge and impact of participation* (2008).

Important Publications: **(1)** Fundamental theorem of natural selection in two loci (1970) *Annals of Human Genetics* **34**, 195–199 **(2)** *Polymorphisms with linked loci* (1971) Chapman & Hall, London. **(3)** Heterosis in relation to genetic divergence and specific combining ability in groundnut (*Arachis hypogaea* L.) (1984) *Euphytica* **33**, 33–39. **(4)** Multivariate methods of quantitative evaluation for crop improvement: Conventional and molecular approaches revisited (1998) *Crop productivity and sustainability – shaping the future*, Proc. 2nd International Crop Sci. Congress, Oxford & IBH Publishing Co., New Delhi, India, 793–807. **(5)** *Rising on rice: The story of Jeypore* (2006) MSSRF, Chennai.

Memberships: Fellow: INSA 87; NAAS 91; NASI 92; Royal Statistical Soc., London; Cambridge Philosophical Soc. • Life Member: Indian Soc. of Genetics and Plant Breeding; Indian Soc. Agri. Stats.

Awards & Distinctions: IARI Best Teacher Award • Rafi Ahmed Kidwai Award • Norman Borlaug Award • Vasvik Award.

Arunachalam, Vallampadugai Srinivasaraghavan

Elected: 1979
Position: Chmn, Centre for Science, Technology and Policy, Bangalore
Specialization: Issues on Energy; IT and Broadband Communications for Human Development and Economic Growth; Materials Design and Application of Infrastructure Technologies to Development
Date and Place of Birth: 10 November 1935; Vallampadugai, Tamil Nadu
Parents: Vallampadugai Srinivasaraghavan and B Parvathammal
Spouse and Children: Meenakshi; two *s*, one *d*
Address: 547, 9th Cross, III Phase, J P Nagar, Bangalore 560 078, India
Tel. (080) 2237 3311 (O), (080) 2649 1399 (R), Mobile: 98454 47735
email: vsa@cmu.edu, URL: www.cstep.in

Education: Mysore Univ.: BSc 56; Saugar Univ.: MSc 58; Univ. of Wales, UK: PhD 65; Annamalai Univ: D Litt 89.

Career: Atomic Energy Establishment, Bombay: Sci. 59–62; Univ. College of N. Wales, UK: Res. Asst 62–65; A B Atomenergi, Sweden: Vis. Sci. 65; BARC, Bombay: Sci. 66–69; NAL, Bangalore: Asst Dir 69–70 & 72–75; Aerospace Res. Labs, W P Air Force Base, USA: Sr Vis. Sci. 70–72; Defence Metallurgical Res. Lab., Hyderabad: Dir 75–82; Defence Ministry, Dept of Defence Res. & Development: Sci. Adviser & Secretary 82–92; Carnegie Mellon Univ., Pittsburgh USA: Distinguished Service Prof.; Univ. of Warwick, UK: Hon. Prof. of Engg 94 onwards; CSTEP, Bangalore: Founder Chmn 2005–.

Scientific Work: Contributions embrace both engineering science and technology. Since PhD work, has been studying the ordering behaviour of alloys including their domain structure, twinning behaviour, mechanical and high temperature properties. In basic research, interests and contributions cover physical metallurgy of titanium and its alloys and powder metallurgy. Along with collaborators, developed FEA based computer simulation to follow the pore closure process in sintering. Studied the elastic properties of porous materials and their variation with densification. Applied work includes contributions in setting up large state-of-the-art industrial manufacturing units for making tungsten alloy components, armour steel and advanced jet engine blades Established R&D centres for transforming research findings to commercial products. Present work includes evaluating policy options involved in adopting new technologies, specially in areas of sustainable energy.

Important Publications: **(1)** The global energy landscape and materials innovation (2008) *MRS Bulletin* **33**, 264. **(2)** Deformation induced substructure in NiAl single crystals oriented for single slip (1999) *Philos. Mag.* **79**, 1555. **(3)** On the alpha-beta interface in titanium alloys (1981) *Acta Met.* **29**, 1685. **(4)** Computer simulation of pressure sintering (1984) *Acta Met.* **32**, 357. **(5)** Creep in thermomechanically processed in 2024 aluminium alloy (1974) *Trans. Ind. Inst. Metals* **27**, 227.

Memberships: Fellow: AeScI; IETE; INSA 84; Royal Acad. of Engineering; INAE; NASI 88 • Hon. Member: IIM • Member: MRS.

Awards & Distinctions: National Metallurgist Day Award, Ministry of Steel 74 • S S Bhatnagar Prize 80 • National Design Award Inst. of Engineers 87 • Tata Gold Medal, IIM 88 • Platinum Medal, IIM 89 • Devi Ahilya Univ. Indore: DSc hc 89 • D S Kothari Medal 98 • Lifetime Achievement Award IIM, Ministry of Steel & Mines 2007 • Brahm Prakash Medal 2007.

Arunan, Elangannan

Elected: 2009
Position: Assoc. Prof., Inorganic and Physical Chem. Dept, IISc, Bangalore
Specialization: Molecular and van der Waals Spectroscopy; Chemical Kinetics and Dynamics; Shock Wave Interactions with Molecules and Materials; Ignition Delay Measurements of Fuel; Hydrogen Bonding and other Molecular Interactions
Date and Place of Birth: 11 May 1961; Madurai
Parents: G Elangannan and E Chellammal
Spouse and Children: Thenmozhi; two *d* (Bharathi and Indumathi)
Address: Inorganic and Physical Chemistry Department, Indian Institute of Science, Bangalore 560 012, India
Tel. (80) 2293 2828 (O), (80) 2360 1952 (R), Mobile: 94498 21952
email: arunan@ipc.iisc.ernet.in; URL: http://ipc.iisc.ernet.in/arunan.html

Education: The American College, Madurai: BSc 82; Indian Inst. of Technology, Madras, MSc (Chemistry) 84; IIT New Delhi: MTech 86: Kansas State Univ., Manhattan, USA: PhD 91.

Career: Univ. of Illinois at Urbana-Champaign Postdoc Res. Assoc. 92–94; Dept of Chemistry IIT Kanpur: Asst Prof. 95–97; IISc, Dept of Inorganic and Physical Chemistry: Asst Prof. 97–2003, Assoc. Prof. 2003–.

Scientific Work: Established new experimental research programmes in India based on indigenous development of experimental methods. Designed and fabricated in-house a pulsed nozzle Fourier transform microwave spectrometer; used the home-made spectrometer to solve the rotational spectra of various H_2O/H_2S complexes; defined hydrogen bond radii for various donors and showed their correlation with the dipole moments of the donors; initiated and co-chaired an IUPAC task group to re-define hydrogen bonding and classify intermolecular interactions; established a single pulse shock tube laboratory to measure reliable kinetic data at high temperatures; measured kinetic parameters for the thermal decompositions of haloethanes and haloethanols, which are possible substitutes of CFC and measured ignition delay of fuels of interest to DRDL and ISRO with home-made experimental facilities.

Important Publications: **(1)** The hydrogen bond: A molecular beam microwave spectroscopist's view with a universal appeal (2009) *Phys. Chem. Chem. Phys.* **11** (Perspective article). **(2)** Hydrogen bonding and hydrogen bond radii: Methane-water dimer and the pentacoordinate carbon (2008) *Chem. Phys. Lett.* **(3)** Is there a hydrogen bond radius? Evidence from microwave spectroscopy, neutron scattering and X-ray diffraction results (2005) *New. J. Chem.* **29,** 371. (4) Rotational spectra and structure of the floppy C_2H_4-H_2S complex: Bridging hydrogen bonding and van der Waals interactions (2004) *Chem. Phys. Lett.* **393**, 22. **(5)** Thermal decomposition of 2-fluoroethanol: Single pulse shock tube and ab initio studies (2003) *J. Phys. Chem. A*. **108**, 9782.

Memberships: Member: American Chemical Soc.; Chemical Res. Soc. of India.

Awards & Distinctions: CRSI Bronze Medal 2008.

Asana, Jamshedji Jahangir*

Elected: 1934
Specialization: Reptiles
Date and Place of Birth: 30 July 1890; Broach, Gujarat
Parents: Jamshedji Jehangir and Aavabai
Last Address: Gujarat College, Ahmedabad, India
***Deceased:** 16 December 1954

Education: Baroda College: MA 14.

Career: Gujarat College, Ahmedabad, Dept of Zoology: Asst Prof. 15–21, Prof. of Biology 24; Univ. of Cambridge: Res. Asst 22–24.

Scientific Work: Research concerned with the life-history and development of reptiles and with chromosomes of plants, reptiles and orthopteroid insects. Extensive work on these insects was reviewed in international journals.

Important Publications: **(1)** Studies on the sexual cycle of some Indian lizards (1932) *Proc. Nineteenth Indian Sci. Congress.*

Asthana, Raghunath Prasad*

Elected: 1945
Specialization: Plant Pathology, Mycology and Bacteriology
Date and Place of Birth: 20 February 1906; Gorakhpur
Last Address: 63/1, Temple Road, Civil Lines, Nagpur, India
***Deceased:** 1965

Education: Univ. of Allahabad: MSc 30; Univ. of London: PhD 32; Imperial College: Diploma 32.

Career: State Gardens, Gwalior: Hon. Jt Dir; Allahabad Univ., Dept of Botany: Lecturer 32–34; Agra Univ., Dept of Botany: Asst Prof. 35–41; Mycologist to the Govt Central Provinces 41–46; College of Agriculture, Nagpur: Prof. of Plant Pathology 46–56, Principal 56–61.

Scientific Work: Studied the influence of fungi in the sporulation of *Melanospora*, antagonism in fungi as a measure of control in the red-leg disease of lettuce, tip burn of *Piper betel* in the central provinces, aspergillosis in fowls, bacterial leaf-spot of *Piper betel*, etc.

Asundi, Moodalagiri Kushalrao*

Elected: 1975
Specialization: Physical Metallurgy, Structural and Mechanical Properties of Materials
Date and Place of Birth: 1 May 1930; Gadag, Karnataka
Parents: Kushalrao Asundi and Seetabai
Spouse and Children: Laxmi; two *s*
Last Address: No.44, VIBHA, Ramakrishna Paramahamsa Marg, Bandra East, Bombay 400 051, India
***Deceased:** 1 December 2003

Education: BHU, Varanasi: MET Engg 53; Univ. of London: PhD 64.

Career: IISc, Bangalore: PG Studies 54; BARC, Bombay: Res. Sci. 55–90; BHU, Varanasi: Distinguished Alumnus.

Scientific Work: Contributed to the physical metallurgy of zirconium and zirconium alloys. Carried out investigations on interaction of interstitial and substitutional elements in zirconium, using internal friction techniques. Developed flow sheets for the manufacture of zircalloy 2 pressure tubes, zinc-Znb pressure tubes on the basis of basic metallurgical investigation in the laboratory. Specialized in failure analysis of materials and carried out investigation on explosion in heavy water plants at Baroda, accidents in HWP Tuticorin.

Awards & Distinctions: National Metallurgy Day Award 74.

Asundi, Rango Krishna*

Elected: 1935
Specialization: Molecular Spectroscopy
Date and Place of Birth: 14 August 1895; Asundi, Karnataka
Parents: Krishnappa Ramappa Asundi and Kamala
Spouse and Children: Kamala; one *s*
Last Address: Om Shanti, 12, Main Avenue, 16th Road, Santa Cruz West, Bombay 400 054, India
***Deceased:** 2 February 1982

Education: Deccan College, Pune: BA Hons 17, Ferguson College, Pune: BSc 19; Univ. of Bombay: MSc; Univ. of London: PhD 29.

Career: Wilson College, Bombay: Lecturer 21, Asst Prof. 24; King's College: London Foreign Res. Scholarship 27–30; AMU: Prof. 31–38; BHU, Varanasi: Prof. 39–56; BARC, Bombay: Adviser 56–82; Board of Res. in Nuclear Sci.: Chmn 57–62; Disarmament Study Group: Chmn 62–65.

Scientific Work: Applied the new quantum mechanics for an understanding of the electronic spectra of simple molecules. The first spectrum studied was that of carbon monoxide, where an electronic band system was discovered which has since been named the Asundi bands. This was followed by in the first detailed analysis of the high pressure carbon bands for which the correct interpretation was given that they belonged to C_2. Research on the spectra of molecules, CN, N_2, F, SeO_2 and SO_2 contributed to a better understanding of the electronic configurations of these molecules. Experimental skills could successfully and very simply excite the electronic spectra of large molecules like benzene and toluene and provide a satisfactory analysis of all the bands of the electronic transitions involved and give a correct explanation of the perturbations observed as due to Fermi resonances.

Memberships: Fellow and Vice President: INSA 51.

Aswathanarayana, Uppugunduri

Elected: 1976
Position: Prof., Hon. Dir, Mahadevan International Centre for Water Resources Management, Hyderabad
Specialization: Nuclear Geology; Natural Resources Management; Environmental Geochemistry
Date and Place of Birth: 1 July 1928; Vallur, Andhra Pradesh
Parents: Sudarsanarao and Sitamma
Spouse and Children: Vijayalakshmi; two *s*, three *d* (Viswanath, Srinivas, Vasundhara, Indira, Vani)
Address: Shanti Shikara Apartments, B-16, Raj Bhavan Road, Somajiguda, Hyderabad 500 082, India
Tel. (040) 2339 9440 (R), Mobile: 98663 31137
email: uaswathanarayana@yahoo.com

Education: Andhra Univ., Waltair: BSc Hons 50, MSc 51, DSc 55.

Career: Andhra Univ., Waltair, Dept of Geology: Lecturer 54–59, Reader 59–66; Univ. of Western Ontario, Canada, Dept of Geophysics: Assoc. Prof. 66–67; Univ. of Sagar, Dept of Applied Geology: Prof. & Head, Centre of Advanced Study in Geology: Dir, Dean of Technol. 67–80; Univ. of Dar es Salaam, Tanzania, Dept of Geology: Prof. & Head 80–90; Universidade Eduardo Mondlane, Mozambique: Commonwealth Vis. Prof. 90–91; IDIL, Mozambique: Adviser on Environment and Technol. 91–2001; Mahadevan Intl Centre for Water Resources Management, Hyderabad: Hon. Dir 2001–.

Scientific Work: Pioneered research in nuclear geology. Established broad framework of the metamorphic chronology of the polymetamorphic belts of peninsular India. Developed methods of using Th/U and U/K ratios as indicators of petrogenesis and as a guide to ore. Studied the mode of formation of the monazite-bearing heavy mineral beach sands along parts of the east and west coasts of India. Delineated the patterns of dispersion of base metals in the secondary environments. Identified a base metal indicator plant on the basis of studies of the base metal deposits of Mamandur, Tamil Nadu. Used trace elements and isotopes to study the patterns of sedimentation in the proterozoic Chhattisgarh basin. Developed petrogenetic models for the Deccan traps. Studied the geoenvironment-related endemicity of fluorosis and goitre in Tanzania. Developed techniques of low-cost, people-participatory methods of soil and water management in Mozambique.

Important Publications: **(1)** *Principles of nuclear geology* (1985) A A Balkema, Rotterdam. **(2)** *Geoenvironment An introduction* (1995) A A Balkema, Rotterdam. **(3)** *Soil resources and the environment* (1999) Science Publishers, USA. **(4)** *Water resources management and the environment* (2001) A A Balkema, Lisse. **(5)** *Mineral resources management and the environment* (2003) A A Balkema, Lisse.

Memberships: Fellow: INSA 76; TWAS 97; GSI; Assn of Exploration Geophysicists• Member: American Geophysical Union; Intl Assn of Geochemistry & Cosmochemistry; Intl Soc. for Trace Element Res. in Humans.

Awards & Distinctions: Excellence in Geophysical Education Award 2005 • Intl Award 2007, American Geophysical Union, Washington DC • Certificate of Recognition, Intl Assn of Geochemistry 2007 • Eminent Citizen Award in Water Sciences, Sivananda Trust 2007.

Athreya, Krishna Balasundaram

Elected: 1974
Position: Distinguished Prof., Iowa State Univ., USA
Specialization: Probability Theory; Stochastic Processes and Mathematical Statistics
Date and Place of Birth: 12 December 1939; Madras, Tamil Nadu
Parents: T A Balasundaran and Narayani Ammal
Spouse and Children: Krishna Siddhanta; two *s*, two *d* (Kartik, Jayadev, Dwijavanti, Ambika)
Address: Departments of Mathematics & Statistics, Iowa State University, Ames, Iowa 50011, USA
Tel. (+1-515) 294 2617, 294 5864 (O), (+1-515) 450 5398 (R), Mobile: 51544 11276
email: kba@iastate.edu, kba@math.iisc.ernet.in, kbathreya@gmail.com

Education: Madras Univ.: BA Hons 59, MA 61; ISI Advanced Statistician Certificate 61; Stanford Univ., USA: PhD 67.

Career: Stanford Univ., USA, Dept of Maths: Res. Assoc. 67–68; Univ. of Wisconsin, USA, Dept of Maths: Asst Prof. 68–71; IISc, Bangalore, Dept of Maths: Prof. 71–79; Iowa State Univ., USA, Dept of Maths and Statistics: Prof. 80–; School of ORIE, Cornell Univ., NY: Prof 2000–04.

Scientific Work: The theory of branching processes, the embedding of urn scheme in branching processes with applications to random graphs, the regeneration approach to Markov chains on general state spaces, bootstrap of the mean in the heavy tailed cases, iterations of random iid maps with applications to population growth, entropy maximisation and Gibbs measures.

Important Publications: **(1)** Branching processes in random environments (1970) *Bull. Am. Math. Soc* **76**, 4, 865–870. **(2)** A new approach to the limit theory of Markov chains on general state spaces (1976) *Trans. Am. Math Sov.* **245**, 293–301. **(3)** Bootstrap of the mean in the infinite variance case (1987) *Ann. Stat.* **15**, 2, 724–731. **(4)** Change of measures for Markov chains and the LLOGL theorem (2000) *Bernoulli.* **(5)** Random logistic maps (2000) *J. Theor. Probab.* **13**, 2, 595–608.

Memberships: Fellow: Inst. of Math Stats, USA.

Awards & Distinctions: Fullbright Scholar • Elected Member: Intl Stat. Inst. • Distinguished Prof.: Iowa State Univ.

Authikesavalu, Munisamy*

Elected: 1948
Specialization: Experimental Surgery, Ophthalomology, Otolaryngology and General Surgery
Date of Birth: 16 August 1906
Last Address: 5-C, Lavelle Road Cross, Bangalore 560 001, India
***Deceased:** 22 September 1973

Education: Madras Univ.: MBBS 35; Univ. of Minneapolis, USA: MS; Mayo Foundation, US: MS; Univ. of Canada: FRCS.

Career: Mysore Medical Service: 27; Medical College, Dept of Clinical Surgery, Mysore: Prof.; Krishnarajendra Hospital, Mysore: Surgical Specialist.

Scientific Work: Interested in clinical, experimental and surgical problems on gastric acidity and peptic ulcers. Has done extensive surgical work in ophthalmology, otolaryngology and general surgery and research problems concerning gastric and duodenal ulcers.

Memberships: Member: Mysore Univ. Senate, Academic Council, Faculty of Medicine • Fellow: Intl College of Surgeons; Sigma Xi Assn for Medical Research.

Awards & Distinctions: Damodara Doss Scholarship 41.

Awasthi, Dharani Dhar

Elected: 1978
Specialization: Lichenology
Date and Place of Birth: 28 September 1922; Naret, Askote, Uttar Pradesh
Parents: Hari Ballabh Awasthi and Chandra
Spouse and Children: Shanti; two *s*, one *d* (Divya Darshan, Kamal, Garima)
Last Address: 11/34, Sector 11, Indiranagar, Lucknow 226 016, India
Tel. (0522) 271 2574 (R)
email: ddawasthi@yahoo.co.uk

Education: Univ. of Lucknow: BSc 43, MSc 45, Diploma in German 53, PhD 61; Univ. of Colorado, USA: PhD 62.

Career: Univ. of Lucknow, Botany Dept: Res. Asst 45–46, Lecturer 52–71, Reader 71–83, Emeritus Sci. CSIR 84–87; Botanical Survey of India, Calcutta: Trainee 46–48; National Botanical Garden, Lucknow: Botanical Asst 48–52; INSA: Sr Sci. 87–90; INSA Hon. Sci. 2008–

Scientific Work: Consolidated information in two publications separately on all the known macro- and micro-lichen taxa of India, Nepal and Sri Lanka in the form of keys to facilitate their identification. Established the foremost school of lichen taxonomy in the country, the Dept of Botany, Univ. of Lucknow.

Important Publications: **(1)** Catalogue of the lichens from India, Nepal Pakistan and Ceylon (1965) *Beih. Nova Hedwigia Heft* **17**, 137. **(2)** Monograph of the lichen genus *Dirinaria* (1975) *Biblioth. Lichenol.* **2**, 1–108. **(3)** A key to the microlichens of India, Nepal and Sri Lanka (1991) *Biblioth. Lichenol.* **40**, 1–337 +2. **(4)** *Handbook of Lichens* (2000) 115. **(5)** *A compendium of the macrolichens from India, Nepal and Sri Lanka* (2007) pp580.

Memberships: Fellow: INSA 84 • Hon. Member: British Lichen Soc. • Life Member: Am. Bryological and Lichenological Soc. & Soc. of Sigma Xi.

Awards & Distinctions: Panchanan Maheshwari Memorial Lecture Award 91 • Intl Assn for Lichenology Acharius Medal 92.

Awati, Prahlad Raoji*

Elected: 1935
Specialization: Zoology
Date and Place of Birth: 18 December 1887; Malunge, Maharashtra
Parents: Raoji Sadashiv Awati
Spouse and Children: Shantabai; three *s*, one *d*
Last Address: Royal Institute of Science, Bombay, India
***Deceased:** 16 February 1966

Education: Univ. of Canterbury, Great Britain: BA, DIC.

Career: Royal Inst. of Sci., Bombay: Prof.; Medical Research Inst. Kasauli: Res. Offr.

Scientific Work: Carried out extensive research on houseflies (*Musca*) at Kasauli. At Royal Institute established a leading school of marine zoology and studied the fauna of the Bombay shore. This resulted in numerous papers on the ecology bionomics, distribution and anatomy of the common shore animals like *Oncidium, Thalassaemia*, *Dendrostoma* and some polychaete worms like *Nereis*. Besides exploratory research laid firm foundation for marine zoology which spanned subjects like fishery biology, planktology and fish biochemistry.

Important Publications: **(1)** *Ostrea culcullata* (The Bombay oyster) (1931) *Indian Zool. Mem.* No.3, Lucknow. **(2)** The mechanism of suction in the potato capsid by *Lygus pabulinus* Linn. (1914) *Proc. Zool. Soc.* London, **2**, 685–733.

Ayer, A Ananthanarayana*

Elected: 1951
Last Address: No. 5, Third Canal Cross Road,
Gandhinagar, Madras 400 020, India
***Deceased:** 9 December 1971

Education: BA, MSc, MBBS.

Career: Central Inst. of Anatomy, Dept of Anatomy: Prof., Head; Medical College, Jammu & Kashmir: Prof. of Anatomy; Stanley Medical College, Madras, Principal, Dir.

Scientific Work: Author of several papers in embryology, anatomy and comparative anatomy.

Important Publications: **(1)** The tri-humoral hypothesis in ancient medicine (1958) *Indian J. Homeopathic Med.* **3**, 2, 35–38. **(2)** Medical lore on plural births in the Mahabharatha (1963) *Indian J. Homeopathic Med.* **8**, 1/2, 1–4.

Ayyangar, Giyarpuram Nadathur Rangaswami*

Elected: 1934
Specialization: Genetics and Morphology of the Sorghum Plant
Date and Place of Birth: 19 May 1887; Madras
Parents: N A Sunderavaradachari
Spouse and Children: Maduravalli; three *s*, six *d*
Last Address: Department of Botany, Andhra University, Hyderabad, India
***Deceased:** 17 November 1968

Education: Madras Univ.: BA 10.

Career: Pithapur Raja's College, Kakinada, Botany Dept: Lecturer 11; Agricultural College and Res. Inst., Coimbatore: Asst Economic Botanist 12, Asst Paddy Specialist 20; Indian Agricultural Service: Offr 21, Millet Specialist; Agri. College and Res. Inst.: Principal 39–42; Agri. Dept, Govt of India: Special Offr on Duty; Andhra Univ., Dept of Botany: Prof. and Head 48–51.

Scientific Work: Knowledge and contributions to sorghum genetics has placed sorghum breeding on a highly scientific basis according to a review of Sir John Russel. Surveyed and reported on the resources for the improvement of agriculture and livestock in the Andaman and Nicobar Islands. Report on bajra cultivation in arid zones of Punjab; greatly contributed towards reorienting the bajra economy in that State.

Important Publications: **(1)** Linkage between the blackish purple of sheath and glume and nucellar brown in sorghum (1936) *Curr. Sci.* **5**, 200–201.

Memberships: Fellow: INSA 35; Indian Botanical Soc.; Indian Soc. of Genetics and Plant Breeding, ICAR Botany & Foodgrains Committee.

Ayyangar, N N*

Elected: 1935
Last Address: Electrical Department, Government of Mysore, Mysore, India
***Deceased:** 22 November 1940

Education: BA, LCE, MIE (Ind.), ISE.

Career: P W & Railways; Govt of Mysore: Secretary, Chief Engineer; Govt of Mysore, Electrical Department: Secretary.

Memberships: President, The Institution of Engineers, Kolkata 31.

Awards & Distinctions: Diwan Bahadur, Mysore State.

Aiyer, H Subramania*

Elected: 1942
Specialization: Stellar distribution; Galactic Co-ordinates
Date of Birth: 1892
Parents: Harihara Iyer and Thangammal
Spouse and Children: Rajammal; five *d*
Last Address: Observatory, Trivandrum, India
***Deceased:** 28 February 1961

Education: Madras Univ.: MA; Univ. of London: PhD 27.

Career: Univ. of London; UK: PhD Scholar 24–27; College of Science, Trivandrum: Prof. and Head of Mathematics Dept 30–49; Govt of Travancore: Principal Govt Astronomer; College of Sci., Trivandrum: Prof.; Observatory, Trivandrum: Superintendent.

Scientific Work: Has worked and written books on astronomy and mathematics and has published papers on stellar distribution and galactic co-ordinates.

Important Publications: **(1)** *Stellar distribution*. **(2)** *Galactic co-ordinates* (Annamalai Univ.).

Ayyar, P Ramaswami*

Elected: 1936
Specialization: Oils and Fats
Date and Place of Birth: 21 December 1889; Vaiyacheri, Tanjore
Parents: V P Ayyar and Subbalakshmi Ammal
Spouse and Children: Kamalambal; three *s*, three *d*
Last Address: Veda Nivas, Third Main Road, Malleswaram, Bangalore 560 003, India
***Deceased:** 9 March 1966

Education: St Joseph's College, Trichy: Triple MA (in Maths, Physics and Chemistry) 1909.

Career: St Joseph's College, Trichy: Prof. in Chemistry 17; Org. Chem. IISc, Bangalore: Res. and Teaching 19–49; Ramaswamy Ayyar Res. Laboratory, Bangalore: Hon. Dir, 49–66.

Scientific Work: Synthesis of cis-α dibroma cinnamic acid and photo conversion to trans-dibromo cinnamic acid. Isolation of the active ingredient of the anti-dysenteric Ayurvedic medicinal herb, *Hollerina antidysenterica*, in the form of the alkaloidal glycoside. First time isolation of lignoceric acid from the red coral seeds. Elucidation of the fatty acid composition of numerous fatty oils of Indian origin. Isolation of cashew shell oil and its use in anti-corrosive paints. Isolation of heptaldehyde from castor oil and its use in selective separation of hydroxylamine from potassium nitrate reduction. Use of castor oil in the production of synthetic rubber. Use of human hair amino acid cystine for production of cystecic acid-based synthetic soap. Produced oxalic acid from saw dust.

Important Publications: **(1)** Chemistry of neem oil (1924) *CA* **18**, 1398. **(2)** Argenose oil (1925) *CA* **19**, 3607.

Memberships: Member: Kannada Sahitya Parishat; South Indian Science Assn

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Ayyar, T V Ramakrishna*

Elected: 1934
Specialization: Entomology; Taxonomy
Date and Place of Birth: 1880; Tarakad, Kerala
Parents: Vaidyanatha Ayyar and Subbulakshmi
Spouse and Children: Lakshmi; five *s*, three *d*
Last Address: Government Agricultural College, Lawley Road P.O., Coimbatore, India
***Deceased:** 13 February 1952

Education: Madras Christian College, Madras: BA 1898, MA; Stanford Univ., USA: PhD.

Career: Maharaja's College, Ernakulam: Lecturer; Office of the Imperial Entomologist, Govt of India, Surat: Res. Asst 1904; Govt of India, Madras: Sr Entomologist 1906–08; College of Agriculture, Coimbatore: Lecturer 1908–14; Indian Agricultural Service: Acting Govt Entomologist 15–20, Govt Entomologist 31–35.

Scientific Work: Despite obstacles, pursued taxonomic studies and built a library in Coimbatore. Gave new records of hundreds of known insects. First to recognize that generic and specific names could be derived from Sanskrit instead of Latin and Greek.

Important Publications: **(1)** A contribution to our knowledge of South Indian Coccidae (1919) *Bull. Agri. Res. Inst. Pusa, India* **87**, 1–50. **(2)** A check list of the Coccidae of the Indian region (1921) *Proc. Entomol. Meeting, India* **4**, 336–362.

Memberships: Member: Entomological Soc. of India • Fellow: London R. Entomological Soc.; London Zoological Soc.

Ayyar, Venkatarama Ramanatha*

Elected: 1935
Specialization: Plant Breeding
Date and Place of Birth: 17 October 1892; North Arcot, Madras
Last Address: 40, MM Avenue, Kanchipuram 631 501, India
***Deceased:** 13 June 1984

Education: Univ. of Madras: Diploma in Agricultural Science.

Career: Madras Agricultural Dept: 16–47.

Scientific Work: Made fundamental contributions to cotton genetics and breeding. CO_2, a more robust and cosmopolitan strain tolerant to jassids and highly productive with a staple length of 7/8 was isolated, and issued in 1929. Finding of the heritable nature of gumming in South American perennial cottons led to isolation of resistant varieties through hybridization. Contribution in the field of cotton cytology pertaining to lint development and to classification of cottons on the basis of anatomical patterns helped in better understanding of hair formation and evolution of *Gossypium* in general. Took up hybridization of Cambodia cotton with African varieties and produced improved varieties, which placed Madras prominently on the cotton map of India.

Important Publications: Injurious after-effects of sorghum growing (1935) *Curr. Sci.* **4**, 99.

Memberships: Member: Indian Central Cotton Committee • President: Indian Soc. of Genetics & Plant Breeding; Indian Sc. Congress Agri. Section.

Awards & Distinctions: Mangala Ramasastrulu Prize 21.

Baba, Chanduri Venkatasatya Kusumahara*

Elected: 1977
Specialization: Nuclear Reactions
Date of Birth: 2 October 1937
Spouse and Children: Sukanya; one *s*, one *d*
Last Address: Nuclear Reaction Section, Tata Institute of Fundamental Research,
Homi Bhabha Road, Bombay 400 005, India
***Deceased:** 5 December 2006

Education: Andhra Univ.: BSc Hons 57; Bombay Univ.: PhD 65.

Career: BARC, Bombay, Nuclear Phys Dn: Sci. Offr; TIFR, Bombay, Nuclear Reactions Section: Prof.

Scientific Work: Work done on level structures of rare-earth nuclei; contributed significantly in understanding dynamics of nuclear motion from spherical to deformed nuclei. Work on magnetic moments gave insight to mechanism of core polarization and mesonic effects in nuclear gyromagnetic ratios. Experiments in medium mass nuclei identified new region of nuclear deformation and throws light on nuclear coupling scheme.

Memberships: Member: Advisory Committee – Intl Conf. on Nuclear Phys.; Intl Conf. on Hyperfine Interactions.

Babu, Cherukuri Raghavendra

Elected: 1990
Position: Prof. Emeritus, CEMDE, Delhi
Specialization: Biosystematics; Ecology; Population Genetics
Date of Birth: 30 June 1940
Parents: C Ramachandriah and C Satyavathiamma
Address: Centre for Environment Management of Degraded Ecosystems, School of Environmental Studies,
University of Delhi, Delhi 110 007, India
Tel. (011) 2766 6237, 2766 7725/1422 (O)
email: crb26@hotmail.com

Education: Andhra Univ.: BSc 61, MSc 63; Calcutta Univ.: DPhil 70.

Career: Delhi Univ.: Lecturer 70–80, Reader 81–90, Prof. 91, Pro-Vice Chancellor; CEMDE, Delhi University: Dir, Prof. Emeritus–.

Scientific Work: Enriched the knowledge base on the plant diversity in Indian subcontinent through taxonomic studies on the plants of Himalayas, and exploration and evaluation of wild relatives of food legumes. Developed ecological restoration technologies using plant-microbe associations, particularly legume–*Rhizobium* symbiosis; the low input, cost effective wild legume–*Rhizobium* symbiotic N_2-fixation technology developed has been successfully utilized in the ecological rehabilitation of limestone-mined areas in Himalayas. Assessed the conservation status of endangered plant taxa, particularly *Meconopsis* and *Coptis* through population biological studies. Evolved strategies for the management of biodiversity through studies on the function and dynamics of ecosystems.

Important Publications: (1) *Herbaceous flora of Dehradun* (1977) CSIR.

Memberships: Fellow : Indian Soc. of Genetics and Plant Breeding; New York Acad. of Sci. • Member: Species Survival Commission of IUCN, Switzerland.

Babu, Padmanabhan

Elected: 1985
Specialization: Genetics and Biotechnology
Date and Place of Birth: 15 July 1942; Perumpavoor, Kerala
Parents: V Padmanabha Iyer and Meenakshi Ammal
Spouse and Children: Janaki; one *s*, one *d*
Address: No. 706, 7th Main, 11th Cross, J.P. Nagar, III Phase, Bangalore 560 078, India
Tel. (080) 2658 7933 (R); Mobile: 98459 46753
email: pbabu0@gmail.com

Education: Univ. of Madras: BSc 60; BARC, Bombay: Training Course in Physics 61; Bombay Univ.: PhD 66.

Career: TIFR, Bombay: Res. Assoc. 61–65, Res. Fellow 65–66, Fellow 68–70, Reader 73–81, Assoc. Prof. 81–89; California Inst. of Technol., USA: Res. Assoc. 66–68; MRC Lab. of Molecular Biology, England: Homi Bhabha Fellow 70–73; IISc, Bangalore: Vis. Prof. 88–89; Bangalore Genei Pvt. Ltd, Bangalore: Managing Dir 89–2003.

Scientific Work: Studied electron-position pair production in cosmic rays using nuclear emulsions. Worked in the area of genetics, first on the free living nematode *C. elegans* and later on the fruit fly *Drosophila melanogaster*. Isolated lethal alleles of the locus wingless which has since been found to be the analogue of the proto-oncogene *Wnt-1* in mammals. Studied the interaction between the locus zeste and transvection (pairing dependent complementation). Since 1989, involved in production of enzymes, DNA etc. used in recombinant DNA research.

Bachhawat, Anand Kumar

Elected: 2004
Position: Sci., Inst. of Microbial Technology, Chandigarh
Specialization: Microbial Genetics, Molecular Genetics; Microbial Biochemistry
Date and Place of Birth: 1 October 1958; Vellore, Tamil Nadu
Parents: Bimal Kumar Bachhawat and Kamla
Spouse: Nandita
Address: Institute of Microbial Technology, Sector 39A, Chandigarh 160 036, India
Tel. (0172) 263 6681–89/3221 (O), (0172) 269 0126 (R)
email: anand@imtech.res.in

Education: Madras Univ.: BSc 78; IIT Kanpur: MSc 80; Calcutta Univ.: PhD 89.

Career: CFTRI, Mysore: Sci. 87–89; MGH Cancer Center, Harvard Medical School, Boston: Postdoc Fellow 90–91; Carnegie Mellon Univ.: Postdoc Fellow 91–93; Inst. of Microbial Technology: Sci. 93–.

Scientific Work: Enhancing our knowledge of glutathione homeostasis in yeasts through: (i) identification of a glutathione-mediated detoxification pathway for the removal of endogenously derived toxic metabolites in yeasts, and the simultaneous elucidation of a decade old puzzle as to why some adenine biosynthetic mutants of yeasts are red, (ii) identification and cloning of the first high affinity glutathione transporter to be described from any system so far (named Hgt1p), (iii) identification of an alternative pathway for glutathione degradation that challenged the decade-old γ-glutamyl cycle and identification of the role of 3 previously uncharacterized proteins (named Dug1p, Dug2p, Dug3p) functioning as a 'glutathione degradosome' in this alternative pathway, and (iv) identification of a novel cys-gly peptidase of the γ-glutamyl cycle of yeast and (v) identification of a novel, high affinity cysteine-specific transporter (named Yct1p) in *S. cerevisiae* that has surprisingly eluded discovery till now, and (v) the description of 'delayed growth stasis' phenomenon on glutathione depletion in yeast.

Important Publications: **(1)** *apd1+*, a gene required for red pigment formation in ade6 mutants of *Schizosaccharomyces pombe*, encodes an enzyme required for glutathione biosynthesis: A role for glutathione and a glutathione-conjugate pump (1997) *Genetics* **145**, 75–83. **(2)** The yeast multidrug resistance protein, pdr5p, confers reduced drug resistance in the erg mutants of *Saccharomyces cerevisiae* (1999) *Microbiology* **145**, 809–819. **(3)** Hgt1p, a high affinity glutathione transporter from the yeast *Saccharomyces cerevisiae* (2000) *J. Biol. Chem.* **275**, 13259–13267. **(4)** The alternative pathway of glutathione degradation is mediated by a novel protein complex involving three new genes in *Saccharomyces cerevisiae* (2007) *Genetics* **175**, 1137–1151 . **(5)** Yct1p, a novel, high-affinity, cysteine specific transporter from the yeast *Saccharomyces cerevisiae* (2007) *Genetics* **176**, 877–890.

Memberships: Fellow: NASI 2007.

Awards & Distinctions: National Biotech Award, Govt of India 2000–01.

Bachhawat, Bimal Kumar*

Elected: 1974
Specialization: Neurochemistry; Glycoconjugates
Date and Place of Birth: 16 August 1925; Rangpur, Bangladesh
Parents: P C Bachhawat and Meenakumari
Spouse and Children: Kamala; one *s*, two *d* (Anand, Kalpana, Kiran)
Last Address: Department of Biochemistry, University of Delhi South Campus, New Delhi 110 021, India
***Deceased:** 23 September 1996

Education: Calcutta Univ.: BSc 46, MSc 48; Univ. of Illinois, USA: PhD 49–53.

Career: Food & Drug Admn, USA: Res. Trainee 49–55; Univ. of Pennsylvania & Michigan: Postdoc. Res. 55–57; CMC, Vellore: Assoc. Prof., Prof. of Biochem. and Chief Neurochemist 57–76; IICB, Calcutta: Dir 76–85; Delhi Univ., Dept of Biochem.: Prof., Head and Dean 86–90; CSIR Bhatnagar Fellow 90–95.

Scientific Work: Discovered the biosynthetic pathway of cerebroside-3-sulphate which led to the understanding of the mechanism of the synthesis of this complex glycolipid; discovered (with M J Coon) enzyme HMGCOA leading to a basic understanding of the ketone body synthesis in animals. Discovered CMP-*N*-acetylneuraminic acid degrading enzyme, which shed light on its regulatory role in the biosynthesis of membrane sialic acid. Developed a liposomal formulation of Amphotericin-B, which can effectively cure systemic aspergillosis in experimental animals.

Memberships: Member: American Chemical Soc. of England • Bhatnagar Fellow 90 • Fellow: NASI • President: Soc. of Biological Chemistry; Neurological Soc. of India.

Awards & Distinctions: S S Bhatnagar Prize 62 • Amrut Mody Res. Award 74 • IISc Golden Jubilee Medal 74; J B Chatterji Memorial Medal 75 • B N Chopra Memorial Lecture Award 77 • J C Bose Award 80 • B C Guha Memorial Lecture Award 84 • R D Birla Smarak Kosh 86 • Padma Bhushan 90 • S S Bhatnagar Medal 91 • Pres. SBC 69–70, 70–94.

Badami, Jayantilal Surchandra*

Elected: 1934
Specialization: Optics; Spectroscopy
Date of Birth: 25 December 1908
Parents: Surchandra Purshotamdas Badami and Surajben
Spouse and Children: Kusumben; two *s*, one *d*
Last Address: 67, Marine Drive, Mumbai 400 020, India
***Deceased:** 13 January 2000

Education: PhD

Career: Wilson College, Bombay, Dept of Physics: Hon. Prof.

Important Publications: **(1)** Hyperfine structure and the gross structure analysis of the spectrum of doubly ionised antimony (1935) *Nature* **136**, 836.

Bagchee, Krishnadas*

Elected: 1935
Specialization: Cytology and Genetics; Timber Pathology; Forest Pathology; Mycology; Forest Botany
Date and Place of Birth: 19 January 1898; Tanti Bandha, Bangladesh
Parents: Kali Das Bagchee and Sarojini
Spouse and Children: Sumati; two *s*, one *d*
Last Address: Nandadeep, 63-A, Rajpur Road, Dehra Dun 248 001, India
***Deceased:** 6 January 1973

Education: Calcutta Univ.: MSc 18; Imperial College of Science and Technol., London: DSc 26, DIC.

Career: Forest Res. Inst., Dehra Dun: Forest Mycologist, Forest Botanist, Chief Res. Offr 27–55; Botanical Res., Jammu and Kashmir: Dir 56–58.

Scientific Work: Initiated research on all aspects of forest and timber pathology for the first time in the country in early thirties. Studied morphology, biology and cytology of Indian coniferous rusts and their control, foliage and twig blights, root and heart-rot diseases of broad-leafed species of economic importance notably Sal, Acacia, Gulmohar and others. Studied identification of wood decay fungi by systematic and cultural studies, decay resistance of Indian timbers and accelerated lab tests to evaluate the efficacy of various chemicals as wood preservatives to enhance durability of timber in service. Established national type culture collection of wood-decay, sap-stain soil and saprophytic fungi of over a thousand species. Established an international standard herbarium of indigenous wood decay and pathogenic fungi.

Memberships: Fellow: Natl Inst. of Sci. • President: Indian Sc. Congress Botany Sec.; Indian Botanical Soc.

Awards & Distinctions: Indian Phytopathological Soc. Berkeley Memorial Medal 54 • Forest Res. Inst. Golden Jubilee Medal 56 • Barclay Medal, Asiatic Soc. 54.

Bagchi, Bhaskar

Elected: 1998
Position: Prof., ISI Bangalore
Specialization: Finite Geometry; Combinatorial Topology; Operator Theory
Date and Place of Birth: 1 February 1954; Assam
Parents: Rajesh Chandra Bagchi and Aparna
Spouse and Children: Sunanda; one *d*
Address: Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, R V College Post, Mysore Road, Bangalore 560 059, India
Tel. (080) 2848 3002–06/455 (O), (080) 6534 1735 (R)
email: bbagchi@isibang.ac.in

Education: ISI, Bangalore: BStat 75, MStat 76, PhD 82.

Career: ISI, Calcutta: Lecturer 87–90; ISI, Bangalore: Assoc. Prof. 89–95, Prof. 95–.

Scientific Work: Analysis and study of the statistical behaviour of Dirichlet *L* functions in the critical strip, joint universality theorems for their functions. Finite geometry: Use of coding theory to prove existence and uniqueness results; construction of the only known finite unital of non-prime power order; characterizations of finite inversive planes by their symmetries; construction of Steiner systems. Combinational topology: Computer-free proof of existence and uniqueness of the minimal triangulation of the complex projective plane; classification of pseudomanifolds with few vertices. Operator theory: Classification of homogeneous operators on Hilbert spaces and their relations with representation theory.

Bagchi, Biman

Elected: 1991
Position: Prof., IISc, Bangalore
Specialization: Physical and Biophysical Chemistry; Statistical Mechanics of Liquids; Molecular Relaxation; Chemical Reaction Dynamics in Liquids and Biological Systems
Date and Place of Birth: 1 January 1954; Calcutta, West Bengal
Parents: Binay Kumar Bagchi and Abha
Spouse and Children: Suhrita; two *s*
Address: Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2926, 2293 2336 (O), (080) 2360 0236 (R)
email: bbagchi@sscu.iisc.ernet.in; URL: http://liquid.sscu.iisc.ernet.in

Education: Calcutta Univ.: BSc 74, MSc 76; Brown Univ., USA: PhD 80.

Career: Univ. of Chicago, James Franck Inst., USA: Res. Assoc. 80–83; Univ. of Maryland, USA: Res. Assoc. 83–84; IISc, Bangalore: Lecturer, Asst Prof., 84–87, Assoc. Prof. 87–94, Prof. 94–95; Amrut Mody Chair Prof. 2003–06, Sr Grade Prof. 2006.

Scientific Work: Development of a detailed microscopic theory of solvation and solvation dynamics of polar solutes (ions, dipoles) in dipolar liquids. The theory includes consistently, for the first time, the molecularity of solute–solvent interactions, the contribution of the solvent translational modes, the inertial and viscoelastic response of the liquid. Other significant contributions include formulation of the first successful theory of barrierless chemical reactions in solution; formulation of molecular theories of dynamics of liquid–solid transitions; study of molecular relaxation; derivation of a microscopic expression for the dielectric friction on moving ions and rotating dipoles; theory of molecular relaxation in supercooled liquids near the glass transition.

Important Publications: **(1)** Leventhal paradox (1992) *Proc. Natl. Acad. Sci.* USA **89,** 20. **(2)** Collapse of stiff conjugated polymers with chemical defects into ordered, cylindrical conformations (2000) *Nature* **405,** 1030. **(3)** Energy landscape view of phase transitions and slow dynamics in thermotropic liquid crystals (2006) *Proc. Natl. Acad. Sci.* USA **103,** 7217. **(4)** Facilitation, complexity growth, mode coupling and activated dynamics in supercooled liquids, (2008) *Proc. Natl. Acad. Sci.* USA **105,** 16077. **(5)** Secondary structure sensitivity of hydrogen bond lifetime dynamics in the protein hydration layer (2005) *J. Am. Chem. Soc.* **127,** 16660.

Memberships: Fellow: American Chemical Soc.; NASI 95; INSA 95; TWAS 2004.

Awards & Distinctions: IASc Assoc. 85–89 • Young Scientist Medal 86 • Homi Bhabha Fellowship 89–91 • A K Bose Memorial Award 90 • S S Bhatnagar Prize 91 • G D Birla Award 97 • TWAS Prize in Chemistry 98 • Goyal Prize in Chemistry 2003.

Bahadur, Raghu Raj*

Elected: 1975
Specialization: Mathematical Statistics
Date and Place of Birth: 30 April 1924; Delhi
Parents: Shiv Raj and Shiv Rani
Spouse and Children: Thelma; one *s*, one *d* (Sekhar, Sheila)
Last Address: No. 9, Raj Narain Road, Apartment 4A, Civil Lines, Delhi 110 054, India
***Deceased:** 7 June 1997

Education: Delhi Univ: BA Hons 43, MA 45; Univ. of North Carolina, USA: PhD 50.

Career: IISc, Bangalore: Res. Trainee 45–46; ISI, Kolkata: GOI Scholar 46–47; Univ. of North Carolina: Res. Fellow 47–50; Univ. of Chicago, USA, Dept of Statistics: Instructor 50–57; ICAR, New Delhi: Research Statistician 51–52; Prof. of Statistics 52–53; Columbia Univ., USA: Asst Prof. 53–54; University of Chicago, USA, Dept of Statistics: Asst Prof. 54–56; ISI, Calcutta: Research Statistician 56–61; Univ. of Chicago 61–91; Assoc. Prof. 61–65; Prof. 65–91; John Simon Guggenheim Fellowship 68–69.

Scientific Work: One of the architects of the modern theory of mathematical statistics. Explored and elaborated the role of sufficiency in statistical decision theory; investigated conditions under which maximum likelihood estimators will be consistent (including Bahadur's example of inconsistency); work on asymptotic theory of quantiles, now called the Bahadur representation of sample quantiles, is well known; developed new methods to compare competing statistical procedures based on the theory of large deviations; other works include approach to the analysis of dichotomous responses, now called the Bahadur–Lazarsfeld expansion, and the asymptotic optimality of the likelihood ratio test in a large deviation sense.

Memberships: Member: Intl Statistical Inst • Fellow: INSA 59; Inst. of Mathematical Statistics; American Acad. of Arts and Sci. • President: Inst. of Mathematical Statistics 74.

Awards & Distinctions: John Simon Guggenheim Fellowship 68–69 • Outstanding Statistician by Am. Stat. Assn 92 • Wald Lecturer 74.

Bajpai, Sunil

Elected: 2007
Position: Prof., IIT Roorkee
Specialization: Vertebrate Paleontology; Biostratigraphy; Paleobiogeography
Date and Place of Birth: 30 September 1961; Kanpur, Uttar Pradesh
Parents: P L Bajpai and Urmila
Spouse and Children: Abha; one *s*, one *d* (Mehul, Jaya)
Address: Department of Earth Sciences, Indian Institute of Technology, Roorkee 247 667, India
Tel. (01332) 28 5079 (O), (01332) 28 5385 (R), Mobile: 94115 00818
email: sunilfes@iitr.ernet.in, sunilbajpai2001@yahoo.com

Education: Punjab Univ., Chandigarh: BSc 82, MSc 83, PhD 90.

Career: IIT Roorkee: CSIR Pool Sci. 94–96, Asst Prof. 96–2003, Assoc. Prof. 2003–08, Prof. 2008–.

Scientific Work: A vertebrate paleontologist mainly interested in fossils ranging in age from the late cretaceous to early tertiary. Recent research covers issues related to the cretaceous-tertiary boundary, India's late cretaceous biogeography and most importantly, eocene mammals of India; both terrestrial and marine.

Important Publications: **(1)** The oldest Asian record of Anthropoidea (2008) *Proc. Natl Acad. Sci. USA* **105**, 32, 11093–11098. **(2)** Whales originated from aquatic artiodactyls in the eocene epoch of India (2007) *Nature* **450**, 20, 1190–1194. **(3)** Eocene evolution of whale hearing (2004) *Nature* **430**, 776–778. **(4)** Vestibular evidence for the evolution of aquatic behaviour in early cetaceans (2002) *Nature* **417**, 163–166. **(5)** A new eocene cetacean from India and the time of origin of whales (1998) *Proc. Natl Acad. of Sci. USA* **95**, 15464–15468.

Memberships: American Geophysical Union; Palaeontological Soc. of India; Geological Soc. of India; Gondwana Geological Soc.; Soc. of Vertebrate Paleontology • Fellow: NASI 2008.

Awards & Distinctions: Khosla Res. Prize 97 • Smithsonian Inst. Visitorship, Washington DC 94–95 • Commonwealth Postdoc Fellow, UK 99 • INSA–Royal Soc. Exchange Award, UK 2001, 2007 • Prof. Invitee, CNRS, Paris 2002 • JSPS Invitation Fellow 2004 • Ramanna Fellow.

Bal, Dattatraya Vaman*

Elected: 1934, 1943
Specialization: Marine Zoology; Oceanography; Fisheries; Aquaculture
Date and Place of Birth: 25 August 1905; Ladghar, Maharashtra
Parents: Vaman S Bal and Janaki
Spouse and Children: Premalatha; two *s*, one *d*
Last Address: Meher Apartments, Anstey Road, Off Altamount Road, Bombay 400 026, India
***Deceased:** 1 April 1999

Education: Bombay Univ.: BSc 30, MSc 33; Liverpool Univ., UK: PhD 40.

Career: Inst. of Sc., Bombay, Dept of Zoology: Prof., Head 44–47, 51–64; Ministry of Food & Agr.: Fish and Fisheries Survey Offr 47–51, Dir 56–64; Central Inst. of Fisheries Edn, Bombay: Founder Dir 61–62; Inst. of Sc., Aurangabad: UGC Res. Sci. 68–73, Offr on Special Duty 74–77.

Scientific Work: Studied anatomy and biology of many Indian marine fishes. Studies focussed on one or more aspects of biology such as feeding biology, digestive physiology, reproductive biology, growth, yield and parasitology, and the anatomy of the skeletal, circulatory, digestive and nervous systems. Contributed to marine ichthyoplankton describing the morphological and biological characteristics of fish eggs and larvae of Bombay waters and Manx waters in Liverpool, Great Britain. Involved in assessment of annual marine fish landings in India and established systematic database for marine fisheries development planning. Also undertook detailed survey of various fishing craft and gear employed in the exploitation of Indian marine fisheries. In the area of marine biology, profiled the oceanographic features of the Arabian Sea off the Bombay coast and Kerala with particular reference to Bombay harbour and Kerala backwaters. Studies also dealt with qualitative and quantitative aspects of marine plankton, littoral fauna, marine borers and fouling organisms of Bombay waters; they brought out the role of primary, secondary and benthic productivity in marine fish production, and economic importance of combating marine boring and fouling organisms in the protection of marine craft, infrastructure and various other installations.

Important Publications: (1) Co-authored *Indian Marine Fisheries* (1984) Tata McGraw Hill, New Delhi.

Memberships: Member: Intl UNESCO Advisory Committee on Marine Sc. 55–58; Biology Standing Commission for Sci. and Technical Terminology, Ministry of Education, Govt of India 65–68 • Fellow: Zoological Soc. of India; Maharashtra Acad. of Sci. • President: Indian Sc. Congress Assn in Zoology, Entomology and Fisheries Sec. 53–54; 21st All India Marathi Vidyan Parishad Session.

Balaji, Vikraman

Elected: 2007
Position: Prof., Chennai Mathematical Inst., Chennai
Specialization: Algebraic Geometry; Representation Theory; Topology
Date and Place of Birth: 15 September 1962; Dindigul, Tamil Nadu
Parents: V Vikraman and Lakshmi
Spouse: Sujatha Babu
Address: Chennai Mathematical Institute, H1, Sipcot IT Park, Padur Post, Siruseri, Chennai 603 103, India
Tel. (044) 3298 3441–2 (O), (044) 2235 2556 (R), Mobile: 98843 92556
email: balaji@cmi.ac.in

Education: Univ. of Delhi: BA 82, MA 84; Univ. of Madras: PhD 91.

Career: Chennai Mathematical Inst.: Fellow 92–95, Reader 95–2002, Assoc. Prof. 2002–06, Prof. 2006–.

Scientific Work: Main research interests have been in the area of moduli spaces of principal bundles on algebraic varieties of dimension greater than one. The construction and study of moduli spaces of principal bundles over curves is a fascinating area of research where one sees a rich interplay of areas of representation theory and algebraic geometry. In recent papers, constructed and studied Donaldson–Uhlenbeck spaces for principal bundles with arbitrary reductive groups as structure groups over algebraic surfaces over fields of characteristic zero. Also constructed and studied the Uhlenbeck compactifications for parabolic bundles on surfaces. One of the questions that arose from A Ramanathan's work was the construction and study of moduli spaces of principal bundles over fields of positive characteristics. With A J Parameswaran, constructed these spaces over fields with characteristic bounded below in a computable manner. This study again involved deep representation theory (the study of low height representation theory involving work of Serre and Jantzen on complete reducibility of representation theory in positive characteristics). The problem has since had significant progress in the recent work of Jochen Heinloth. With J Kollar, defined the notion of algebraic holonomy of stable bundles on smooth projective varieties of arbitrary dimensional over fields of characteristic zero. This notion allows one to have analogues of the classical Narasimhan–Seshadri theorem for varieties of higher dimensions. Has made significant progress and generalizations on all these notions over fields of all characteristics to get the precise analogues of the tensor product theorem for stable bundles on arbitrary varieties.

Important Publications: **(1)** Principal bundles over projective manifolds with parabolic structure over a divisor (2001) *Tohuku Math. J.* **53**, 337–368. **(2)** Semistable principal bundles-I (2002) *J. Algebra* **258**, 321–347. **(3)** Semistable principal bundles-II (2003) *Transformation Groups* **8,** 1, 3–36. **(4)** Principal bundles on projective varieties and the Donaldson–Uhlenbeck compactification (2007) *J. Differ. Geom.* **76**, 351–398. **(5)** Holonomy groups of stable vector bundles (2008) *RIMS J. Kyoto Univ.* **44**, 2, 183–211.

Awards & Distinctions: S S Bhatnagar Prize 2006 • J C Bose National Fellowship 2008.

Balakrishnan, Narayanaswamy

Elected: 1994
Position: Prof., Assoc. Dir, IISc, Bangalore
Specialization: Numerical Electromagnetics; Information Security; Polarimetric Radars; Aerospace Electronic Systems
Date and Place of Birth: 1 June 1950; Villupuram, Tamil Nadu
Parents: V R Narayanaswamy Iyer and Meenakshi
Spouse and Children: Jyothi; two s
Address: Supercomputer Education & Research Centre and Department of Aerospace Engineering,
Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0129, (080) 2360 0325 (O), (080) 2360 0114 (R)
email: balki@serc.iisc.ernet.in; URL: http://swati.dli.ernet.in/balki

Education: Univ. of Madras: BE Hons 72; IISc, Bangalore: PhD 79.

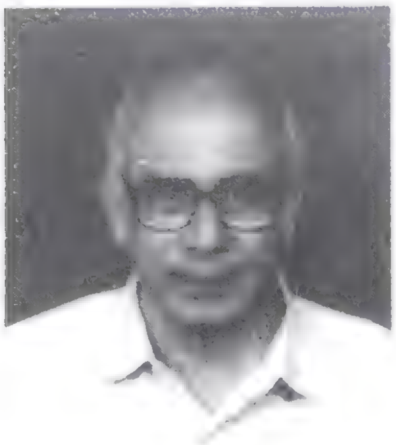
Career: IISc, Bangalore, Dept of Aerospace Engg: Asst Prof. 81, Assoc. Prof. 86, Prof. 91; Supercomputer Education & Res. Centre: Chmn 94; National Severe Storms Lab., Oklahoma, USA: NRC Sr Res. Assoc. 87–89; Colorado State Univ., USA: Vis. Sci. 90; Univ. of Oklahoma, USA: Vis. Sci. 93.

Scientific Work: Evolved computationally elegant procedures for synthesizing conventional and monopulse arrays in the presence of practical and excitation constraints and also to estimate the modification to radiation characteristics with specific reference to spacecraft mounted antennae and ILS glideslope. Contributed to the development of a framework based on electromagnetic scattering models, for innovative interpretation of polarimetric and Doppler radar data. Fundamental contribution in this area includes the quantification of rain and hail rates from polarimetric radar data particularly when rain and hail coexist in mixed phase. Showed the significance of zero-lag correlation coefficient between vertically and horizontally polarized radar echoes in measurement of hail size and also in coming up with a technique to estimate the coefficient. Proposed and demonstrated the use of vertical looking polarimetric radars for identification of the melting layer. Sophistication of the EM scattering models developed are proven by their close agreement with several radar measurements.

Memberships: Fellow: INAE 93; INSA 98; NASI 2000; TWAS 2003 • Member: Inst. of Electronics & Telecommunications.

Awards & Distinctions: UNESCO/ROSTSCA Young Scientist Award 85 • J C Bose Memorial Award 87 • Padma Shree • Hari Om Prerit Dr Vikram Sarabhai Research Award.

Balakrishnan, Venkataraman



Elected: 1985
Position: Prof., IIT Madras
Specialization: Statistical Physics; Stochastic Processes; Dynamical Systems
Date and Place of Birth: 16 December 1943; Delhi
Parents: K S Venkataraman and Janaki
Spouse and Children: Radha; one *s*, one *d*
Address: Department of Physics, Indian Institute of Technology Madras, Chennai 600 036, India
Tel. (044) 2257 4853 (O), (044) 2431 0387 (R)
email: vbalki@physics.iitm.ac.in, venkataraman.balakrishnan@gmail.com
URL: http://hsb.iitm.ac.in/~vbalki

Education: Delhi Univ.: BSc Hons 63, MSc 65; Brandeis Univ., USA: PhD 70.

Career: TIFR, Bombay: Vis. Fellow 71–74; Reactor Res. Centre, Kalpakkam: Sci. Offr 74–80; IIT, Madras: Prof. 80– .

Scientific Work: Regge trajectories in field-theoretic and multiperipheral models; Green function theory of the Heisenberg ferromagnet; microscopic theory of anelasticity and linear viscoelasticity using linear response theory, and application to various types of mechanical relaxation using methods of non-equilibrium statistical physics and stochastic processes; generalized fluctuation-dissipation theorems; dislocation dynamics; topological defects in condensed matter; exact solution of a bond-percolation model; continuous-time random walks, anomalous diffusion and fractional Brownian motion; first-passage time distributions for non-Markovian random walks; statistical and probabilistic aspects of dynamical systems; invariant measures for noisy chaotic maps; extreme value statistics and recurrence time distributions in intermittent chaos and fully-developed chaos; nonequilibrium statistical mechanics of one-dimensional models; isospectral oscillators, generalized coherent states and squeezed states; revival and fractional revival phenomena and non-classical effects in quantum wave packet dynamics.

Important Publications: **(1)** *Elements of nonequilibrium statistical mechanics* (2008) Ane Books India, New Delhi, pp. xxii + 314. **(2)** Recurrence time statistics in chaotic dynamics. I. Discrete time maps (1997) *J. Stat. Phys.* **86**, 191–212; II. Multiple recurrences in intermittent chaos (2001) *Stoch. Dyn.* **1**, 345–360. **(3)** Extreme value distributions in chaotic dynamics (1995) *J. Stat. Phys.* **80**, 307–336; Extreme events in deterministic dynamical systems (2006) *Phys. Rev. Lett.* **97**, 210602. **(4)** Anomalous diffusion in one dimension (1985) *Physica* **A132**, 569–580. **(5)** General linear response analysis of anelasticity (1978) *Pramana – J. Phys.* **11**, 379–388.

Memberships: Life Member: Indian Physics Assn • Member: American Physical Soc.

Balaram, Hemalatha

Elected: 2009
Position: Prof., JNCASR, Bangalore
Specialization: Biochemistry; Molecular Enzymology; Molecular Parasitology
Date and Place of Birth: 27 October 1956; Manama, Bahrain
Parents: K S Subramanian and Ramani
Spouse and Children: P Balaram; one *s* (Aditya)
Address: Molecular Biology and Genetics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research
Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2812 (O), (080) 2360 2300 (R), Mobile : 99721 77547
email: hb@jncasr.ac.in

Education: Univ. of Hyderabad: MSc; IISc, Bangalore: PhD.

Career: Univ. of California, San Francisco: Postdoc. Res. 88–89; Astra Res. Centre, India: Sci. 89–96; JNCASR: Faculty Fellow 96–2002, Assoc. Prof. 2002–08, Prof. 2008–.

Scientific Work: Main focus of study has been on protein structure and molecular enzymology with particular reference to enzymes of the malarial parasite, *Plasmodium falciparum*. Detailed kinetic and mechanistic investigations have provided significant insight into the catalytic functions of the enzymes involved in purine nucleotide metabolism. Key contributions pertain to the elucidation of mechanisms of complex two- and three-substrate enzyme catalysed reactions, mechanism of specific enzyme activation and crystal structures of some of the enzymes under study. This led to the understanding of different aspects of structure-function relationships in the enzymes under study.

Important Publications: **(1)** Elucidation of the substrate specificity, kinetic and catalytic mechanism of adenylosuccinate lyase from *Plasmodium falciparum* (2008) *Biochim. Biophys. Acta* (ahead of print). **(2)** *Methanocaldococcus jannaschii* adenylosuccinate synthetase: Studies on temperature dependence of catalytic activity and structural stability (2008) **1784,** 2019–2028. **(3)** Biochemical characterisation of *Plasmodium falciparum* Sir2, a NAD+ dependant deacetylase (2008) *Mol. Biochem. Parasitol.* **158,** 139–151. **(4)** Kinetic characterisation of adenylosuccinate synthetase from the thermophilic *Methanocaldococcus jannaschii* (2007) *Biochemistry* **46**, 12821–12832. **(5)** Kinetic and biochemical characterisation of *Plasmodium falciparum* GMP synthetase (2008) *Biochem. J.* **409**, 263–273.

Balaram, Padmanabhan

Elected: 1981
Position: Prof., Dir IISc, Bangalore
Specialization: Bio-organic Chemistry; Molecular Biophysics
Date and Place of Birth: 19 February 1949; Madras, Tamil Nadu
Parents: K S A Padmanabhan and Indira
Spouse and Children: Hemalatha; one *s* (Aditya)
Address: Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0690, (080) 2360 2741 (O), (080) 2360 2300 (R)
email: pb@mbu.iisc.ernet.in, diroff@admin.iisc.ernet.in

Education: Ferguson College, Pune: BSc 67; IIT Kanpur: MSc 69; Carnegie Mellon Univ.: PhD 72.

Career: Carnegie–Mellon Univ.: Res. and Teaching 69–72; Harvard Univ. USA: Res. Assoc. 72–73; Molecular Biophysics Unit, IISc, Bangalore: Lecturer 73–77, Asst Prof. 77–82, Assoc. Prof. 82–86, Prof. 86–, IISc Dir 2005–.

Scientific Work: Developed spectroscopic approaches for the study of biological systems. Has developed the use of conformationally constrained amino acids in the design of protein mimics, leading to the construction of stable helices, beta-hairpins, multistranded sheets and mixed structures with helices and strands. X-ray diffraction, NMR spectroscopy and chiroptical methods have been extensively employed in conformational analysis. Work in this area has focussed on peptides incorporating residues like alpha aminoisobutyric acid, gabapentin, D-proline, pseudoproline and disulfide bridges. Protein and peptide design; specifically the use of backbone conformational constraints in directing folding. Biological mass spectrometric analysis of natural peptide libraries and structural enzymology.

Memberships: Fellow: INSA 85; NASI 89; TWAS 96.

Awards & Distinctions: INSA Young Scientist Award 77 • S S Bhatnagar Prize 86 • Padma Shri 2002.

Balasubramanian, Aiylam Subramania

Elected: 1994
Specialization: Biochemistry; Neurochemistry; Enzymology
Date and Place of Birth: 15 July 1937; Perumbavoor, Kerala
Parents: A V Subramania Iyer and Seethammal
Spouse and Children: Jyothi; two *s*
Address: 16/7A, First New Street, Thirunagar, Vellore 632 006, India
Tel. (0416) 224 6260 (R)
email: vlr_bala6@sancharnet.in

Education: Univ. of Madras: BSc 57; Univ. of Kerala: MSc 59, PhD 64.

Career: Christian Medical College and Hospital, Vellore: Res. Fellow 60–66, Reader in Biochemistry 69–74, Assoc. Prof. of Biochemistry 74–77, Prof. of Biochemistry and Chief, Neurochemistry Laboratory 77–97, CSIR Emeritus Sci. 97–2002; Univ. of Southern California, USA: Res. Assoc. 66–68;

Scientific Work: Discovered new catalytic activities in the enzymes acetylcholinesterase and butyrylcholinesterase. These catalytic activities include an aryl acylamidase activity (sensitive to 5 hydroxytryptamine and tyramine) and a peptidase activity. Elucidated the phosphorylation and dephosphorylation mechanisms of the mannose-6-phosphate receptor from brain. Reported the deficiency of arylsulfatase in the genetic disorder of metachromatic leukodystrophy for the first time.

Important Publications: **(1)** Sulphate metabolism in brain (1970) *Brain Research* **20**, 341–360. **(2)** The association of serotoxin-sensitive aryl acylamidase with acetylcholinesterase in the monkey brain (1979) *Euro. J. Biochem.* **94**, 135–143. **(3)** The identity of serotonin-sensitive aryl acylamidase with acetylcholinesterase from human erythrocytes, sheep basal ganglia and electric eel (1980) *Euro. J. Biochem.* **111**, 511–524. **(4)** Phosphorylation of the lysosomal enzyme binding receptor protein from monkey brain and evidence for a tyrosine kinase activity associated with it (1987) *Biochem. Biophys. Res. Commun.* **147**, 927–935. **(5)** Non-cholinergic functions of cholinesterases (1993) *FASEB J.* **7**, 1354–1358.

Memberships: American Chemical Soc.; USA Sigma Xi; Intl Soc. for Neurochemistry; Biochemical Soc. of London; Intl Brain Res. Organization • Fellow: NAMS 98.

Awards & Distinctions: CMC Lourdu Yeddanapalli Memorial Award 78 • Hari Om Ashram Alembic Res. Award 81 • Soc. of Biological Chemists Shadaksharaswamy Endowment Award 88.

Balasubramanian, Dorairajan

Elected: 1981
Position: Dir of Research, L V Prasad Eye Inst., Hyderabad
Specialization: Biophysical Chemistry; Biochemistry of Eye Diseases
Date and Place of Birth: 28 August 1939; Sholavandan, Tamil Nadu
Parents: V Dorairajan and Janaki
Spouse and Children: Shakti; two *d*, Katyayani and Akhila
Address: L V Prasad Eye Institute, L V Prasad Marg, Banjara Hills, Hyderabad 500 034, India
Tel. (040) 2354 3652, (040) 3061 2501 (O), (040) 2717 4787 (R)
email: dbala@lvpei.org, dbala@operamail.com

Education: Madras Univ.: BSc 57; Rajasthan Univ.: MSc 59; Columbia Univ.: PhD 65.

Career: Univ. of Minnesota: Postdoc. Res. 66; IIT Kanpur: Lecturer, Asst Prof. & Prof. 67–77; Univ. of Hyderabad: Prof. 77–82, Centre for Cellular and Molecular Biology: Dy Dir 82–92, Dir 92–98; UGC: National Lecturer 85–86; NIH, USA: Vis. Sci. 79, 88–89; L V Prasad Eye Inst., Hyderabad: Dir of Res. 98–.

Scientific Work: Studied the structural, conformational and interaction properties of proteins. Used a variety of spectroscopic techniques to elucidate these interactions to a great advantage. Investigating the structural modifications of the eye lens proteins, namely the crystallins, in relation to the basis of transparency and opacification of the lens during cataract leading to some interesting findings in the molecular epidemiology of cataract.

Memberships: Fellow: American Assn for Advancement of Sci.; NASI 83; INSA 88; TWAS 97; Intl Mol. Biol. Network, Singapore • Member : Soc. of Biological Chemists; Indian Biophysical Soc.

Awards & Distinctions: Yeddanpalli Award and Medal 77 • S S Bhatnagar Prize 81 • P S Sarma Memorial Award 83 • Ranbaxy Award in Medical Sciences 90 • Fukui Award for Cataract Res., USA 91 • Jagadis Chandra Bose Medal 98 • Indira Gandhi Prize for popularisation of Science 2002 • Padma Shri 2002 • 'Chevalier de L'Ordre National de Merite' National Honour by President of France 2002.

Balasubramanian, Kalpattu Kuppusamy

Elected: 1991
Position: Exe. Dir, Shasun Res. Centre, Chennai
Specialization: Molecular Rearrangements; Carbohydrate Chemistry; Organic Electrophotochemistry; Synthetic Organic Chemistry; Heterocyclic Chemistry
Date and Place of Birth: 5 September 1939; Madras, Tamil Nadu
Parents: K Kuppusamy and Rajammal
Spouse and Children: Chandralekha; one *s*, (B Murali Krishnan)
Address: R & D, Shasun Research Centre, 27, Vandaloor Kelambakkam Road, Keelakottaiyur, Chennai 600 048, India
Tel. (044) 2747 6132 (O), (044) 2446 1595 (R), Mobile: 94449 10297
email: kkbalu@hotmail.com, kkb@shasun.com

Education: Madras Univ.: BSc Hons 60, MSc 61, PhD 65.

Career: Madras Univ.: Postdoc Res. 66, Sci. Pool Offr 71; Wayne State Univ., USA: Postdoc Res. 69; IIT Madras: Lecturer 71–79, Asst Prof. 79–88, Assoc. Prof. 88–90, Prof. 90–2001; Univ. of Braunschweigh: Humboldt Foundation Fellowship, 77–78; Univ. of Karlsruhe, Germany: Vis. Prof. 84; Univ. of Nancy, France: INSA Vis. Prof. 84., Guest Sci.; National Inst. of Standards and Technology, Gaithersburg, Maryland, USA: 93–94; Shasun Chemicals & Drugs Ltd, Chennai: Dir of Research 2001–.

Scientific Work: Demonstrated utility of Mitsunobu coupling reaction for synthesizing tertiary ethers from tertiary ethynyl carbinols. Investigated the mechanism of this reaction in (2.2.1) bicyclic alcohols using deuterium labelling. Discovered some interesting transformations on the cathodic reduction of beta-chlorovinyl aldehydes. Successfully used this electrochemical tool for achieving selective transformations in multi-functional systems which are either difficult to realize or which so far have not been achieved by chemical methods.

Memberships: Fellow: INSA 93.

Awards & Distinctions: T R Govindachari 60th Birthday Commemoration Award 85–86.

Balasubramanian, Kunissery Ananthasubramanian

Elected: 2002
Specialization: Oxidative Stress; Gastrointestinal Mucosa; Pathophysiology
Date and Place of Birth: 6 April 1945; Kunissery, Kerala
Parents: K S Ananthabalasubramanian and Lakshmi
Spouse and Children: Thylambal; two *s* (Prakash, Pradeep)
Address: No. 49, Guruthoppu Phase 1, II Street, Sathuvachari, Vellore 632 009, India
Tel. (0416) 228 2052 (O), (0416) 225 2879 (R), Mobile: 94872 28314
email: wlbalu@hotmail.com

Education: Madras Univ.: BSc 67, MSc 70, PhD 75.

Career: CMC Hospital: Sr Lecturer 78–81, Reader 81–84, Assoc. Prof. 84–86, Prof. 86, Head 97.

Scientific Work: Primary research interest is on biochemical mechanisms involved in the pathyphysiology of the gastrointestinal mucosa. Work has shown generation of free radicals during ischemia/reperfusion injury in the intestine leading to mitochondrial structural and functional alterations which can be prevented by nitric oxide. Also showed that oxidants stimulate fluid and electrolyte secretion in the colon, the possible cause of diarrhoea associated with inflammatory conditions. Work on surgical stress demonstrated structural and functional alterations in intestinal epithelium due to oxidative stress leading to generation of lipid mediators which brings about distant organ damage such as lung and these changes can be prevented by glutamine supplementation or heat pre-conditioning. Surgical stress also brings about quantitative and qualitative changes in the luminal bacteria and mucosal glycosylation due to oxidative stress which may facilitate bacterial translocation. These observations are very relevant in understanding post-surgical complications. Studies using experimental liver cirrhosis have shown oxidative stress in the intestinal mucosa and increased intestinal permeability. This also led to qualitative changes in the luminal bacteria and alteration epithelial surface sugars which act as receptors for luminal bacteria. These observations are relevant in understanding one of the major complications of the liver cirrhosis viz. spontaneous bacterial peritonitis.

Important Publications: **(1)** Intestinal mucosal alterations in rats with carbon tetrachloride induced cirrhosis: Changes in glycosylation and luminal bacteria (2006) *Hepatology* **43**, 837–846. **(2)** Surgical manipulation of the intestine results in quantitative and qualitative alterations in luminal *E. coli* (2004) *Ann. Surg.* **240**, 248–254. **(3)** Intestinal mucosal alterations in experimental cirrhosis in the rat: Role of oxygen free radicals (2002) *Hepatology* **35**, 622–629. **(4)** The intestine in liver cirrhosis: Its role in spontaneous bacterial peritonitis (2001) *J. Gastroenterol. Hepatol.* **16**, 6, 607–612. **(5)** Nitric oxide prevents intestinal mitochondrial dysfunction induced by surgical stress (2000) *Br. J. Surg.* **88**, 393–399.

Memberships: Member: Guha Res. Conference; ISG; SFRR • Fellow: NASI 2002; NAMS 2006.

Awards & Distinctions: Prof. Shadaksharaswamy Endowment Lecture Award 92 • Amrut Mody Unichem Award 97 • Park Davis Gastroenterology Oration Award 98 • Tamil Nadu Sci. & Technology Award 98 • Hari Om Ashram Alembic Res. Award 99 • Dr U R Khanolkar Oration Award 2009.

Balasubramanian, Ramachandran

Elected: 1987
Position: Prof., Dir, Inst. Math. Sci., Chennai
Specialization: Analytic Number Theory
Date and Place of Birth: 15 March 1951; Kumbakonam, Tamil Nadu
Parents: S Ramachandran and M Jembegalakshmi
Spouse and Children: Lakshmi; one *s*, one *d*
Address: The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai 600 113, India
Tel. (044) 2254 3200–01 (O), (044) 2259 1626 (R)
email: balu@imsc.res.in, director@imsc.res.in

Education: Madras Univ.: BSc 70, MSc 72; Bombay Univ: PhD 79.

Career: TIFR, Bombay: Res. Asst 73–77, Fellow and Reader 77–85; Inst. of Mathematical Sciences, Madras: Assoc. Prof. & Prof. 85–95, Sr Prof. 95–2000, Dir 2000–.

Scientific Work: Made substantial improvement on a long-standing result of Titchmarsh on the mean square zeta(s). Improved Omega theorem of H L Montgomery zeta(*s*) substantially without hypothesis. Improved to the optimal limit, Levinson's theorem on the possible zeroes of zeta near the line sigma = 1. Worked on Waring's problem on nineteen fourth powers.

Memberships: Fellow: INSA 88; NASI 92 • President: Cryptology Res. Soc. of India, Kolkata • Member: INSA Council.

Awards & Distinctions: INSA Medal for Young Scientists 80 • IASc Assoc. 83–86 • B M Birla Award 90 • S S Bhatnagar Prize 90 • Srinivasa Ramanujam Birth Centenary Award, Indian Science Congress 2000–01 • Chevalier de l'Ordre National du Merite, French Govt 2002 • Padma Shri 2006.

Baldev Raj

Elected: 2000
Position: Dir, IGCAR, Kalpakkam
Specialization: Non-destructive Science and Technology; Materials Performance; Technology Management; Nano Science and Technology
Date and Place of Birth: 9 April 1947; Jammu Tawi, J&K
Parents: Inderjit and Amrit Kaur
Spouse and Children: Aruna Kumari; two *s* (Hemant, Kunal)
Address: Indira Gandhi Centre for Atomic Research, Kalpakkam 603 102, India
Tel. (044) 2748 0240 (O), (044) 2748 1342 (R)
email: dir@igcar.gov.in, secdmg@igcar.gov.in

Education: Ravishankar Univ., Raipur: BE 69; IISc, Bangalore: PhD 90.

Career: BARC, Mumbai: Sci. Offr 70–73; RISO National Lab, Denmark: Sci. 73–74; Radiometallugy Lab, IGCAR, Kalpakkam: Group Leader 74–81, Head 81–93; Dir 93–2004; Fraunhofer Inst. for NDt, Germany: Vis. Sci. 98; IGCAR: Dir 99–.

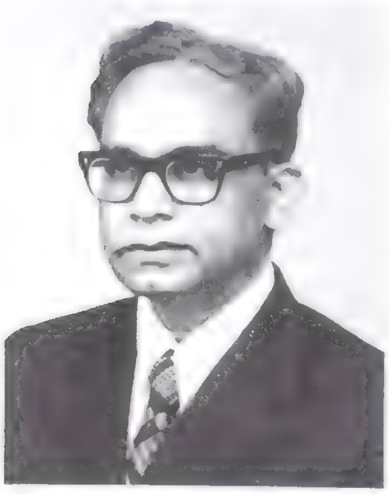
Scientific Work: Led many successful R&D programmes involving the development of materials, fabrication technologies, nondestructive testing techniques, corrosion S&T, characterization of microstructural evolution during ageing, creep and fatigue, failure analysis and life extension. These programmes have played a pivotal role in the maturing S&T for fast breeder reactors and fuel reprocessing programmes.

Important Publications: **(1)** On the influence of tempered microstructures on magnetic Barkhausen emission in ferritic steels (1998) *Philos. Mag.* **A77,** 1499. **(2)** Detection of breakway oxidation and spalling in the oxide scales of 21/4Cr-1 Mo steel using acoustic emission technique (1985) *Oxidation of Metals* **23,** 159. **(3)** Ultrasonic velocity measurements of estimation of grain size in austenitic steel (1995) *NDT&E International* **28,** 179. **(4)** On the pitting corrosion resistance of nitrogen alloy cold worked austenitic stainless steels (2002) *Corrosion Science* **44,** 2183. **(5)** Nitrogen ion implantation and *invitro* corrosion behaviour of as-cast Ti-6Al-7Nb alloy (2002) *Corrosion Science* **44,** 2439.

Memberships: Fellow: NASI 98; INSA 2006; INAE 92; TWAS 2006; Asia-Pacific Acad. of Materials • Member: German Natl. Acad. Sci. 2008.

Awards & Distinctions: Intl Inst. of Welding Jaeger Lecture Award, 2004 • National Metallurgist Award 2007 • IISc Distinguished Alumni Award, 2007 • Padma Shri 2007 • Jai Krishna Memorial Award • INAE Distinguished Materials Scientist Award 2009.

Baliah, Vuppalapaty*



Elected: 1974
Specialization: Physical Organic Chemistry; Organosulphur Compounds; Heterocyclic Compounds
Date and Place of Birth: 15 August 1917; Penugudurupadu, Andhra Pradesh
Parents: Vuppalapaty Abjiah and Venkamma
Spouse and Children: Anasuya; two *s*, two *d*
Last Address: H-42/8, Appu Colony, Thiruvanmiyur, Madras 600 041, India
***Deceased:** 26 September 2000

Education: Andhra Univ.: BSc Hons 40, MSc 41; Stanford Univ.: PhD 48.

Career: Pachaiyappa's College, Madras: Lecturer 41–45; Annamalai Univ., Dept of Chem.: Lecturer 49–50; Prof. and Head 50–76; Nagarjuna Univ.: Vice-Chancellor 76–79.

Scientific Work: Developed elegant syntheses for piperidin-4-ones and some heterobicyclic compounds. Pioneering work done on the isomerization of aryl arenesulphonates to hydroxydiaryl sulphones; many new beta-aminosulphones and alpha, beta-unsaturated sulphones were synthesized by newer methods; steric and polar effects operating in aryl methyl sulphoxides and sulphones were elucidated employing spectroscopic and dipole moment studies; the nature of sulphur-oxygen bond in sulphones and phosphorus-oxygen bond in phosphine oxides was studied; the applicability of Hammett equation to napthalene derivatives was tested by extensive kinetic studies. Elucidated the conformations of many cyclic and heterocyclic compounds by spectral and dipole moment measurements; synthesized many long-chain molecules; provided extensive experimental evidence for d-orbital resonance involving sulphur, chlorine, bromine and iodine; discovered steric enhancement of resonance.

Memberships: Fellow: INSA 72; Andhra Pradesh Acad. of Sci.

Awards & Distinctions: UGC National Lecturer 71 • Nagarjuna Univ. DSc (hc).

Bambah, Ram Prakash

Elected: 1974
Specialization: Number Theory; Discrete Geometry
Date and Place of Birth: 30 September 1925; Jammu, Jammu & Kashmir
Parents: Bhagat Ram and Lajwati
Spouse and Children: Saudamini Parija; two *d*
Address: 1275, Sector 19B, Chandigarh 160 019, India
Tel. (0172) 272 4863, (0172) 278 0228 (R), Mobile: 94172 24863
email: bambahrp@rediffmail.com

Education: Panjab Univ.: BA 43, BA Hons 43, MA 45; Univ. of Cambridge: PhD 50, ScD 70.

Career: Panjab Univ.: Reader 52–58, Prof. 58–85, Vice-Chancellor 85–91, Prof. Emeritus 93; Ohio State Univ.: Prof. 64–69, Vis. Prof. 91–92.

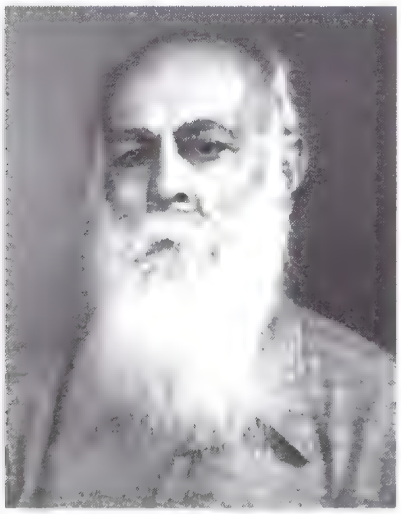
Scientific Work: Worked in various branches of number theory, especially geometry of numbers, and discrete geometry. Contributed to congruence properties of Ramanujan's function tau (*n*), critical determinants of non-convex regions, lattice and non-lattice coverings, especially by spheres, convex bodies and star bodies, Minkowski's conjecture on products of non-homogeneous linear forms and minima of non-homogeneous quadratic forms.

Important Publications: **(1)** On numbers which can be expressed as a sum of two squares (1947) *Proc. Natl. Inst. Sci. India*, **13,** 241–246. **(2)** On geometry of numbers of non-convex regions with hexagonal symmetry (1951) *Philos. Trans. R. Soc. London Ser A* **243,** 431–462. **(3)** On lattice coverings by spheres (1954) *Proc. Natl. Inst. Sci. India* **20,** 25–52. **(4)** On plane coverings with convex domains (1971) *Mathematika* **13,** 91–97. **(5)** Minkowski's conjecture for *n*=5: A theorem of Skubenko (1980) *J. Number Theory* **12,** 27, 48.

Memberships: Fellow: INSA 55; NASI 78; TWAS 93 • St Johns Medical College, Cambridge 52–55 • Member: Inst. for Advanced Study, Princeton 52–54.

Awards & Distinctions: 1851 Exhibition Scholar 48–51 • President: Indian Math. Soc. 69 • UGC National Fellow 73–75 • INSA Srinivas Ramanujam Medal 79 • Meghnad Saha Award • UGC Hari Om Trust 86 • Indian Math. Soc. Ramanujan Award • ISCA Ramanujan Medal, • Padma Bhushan 88 • INSA Aryabhata Medal 98.

Banerjee, Dilip Kumar*



Elected: 1957, Resigned 72, Readmitted 81
Specialization: Synthesis of Steroids; Terpenoids; Reaction Mechanisms Spectroscopy X-ray Crystallography
Date and Place of Birth: 16 January 1912, Calcutta
Parents: Sitalakanto Banerjee and Suniti Debi
Spouse and Children: Kanak; one *s* (Dipankar)
Last Address: 51/39, 1st Main Road, Lower Palace Orchards, Bangalore 560 003, India
***Deceased:** 10 June 1993

Education: Univ. of Calcutta: DSc 41.

Career: Univ. of Calcutta, Postgraduate Dept: P C Ray Postdoc Fellow 41–46, Hon. Lecturer 43–46; College of Engg & Technol., Jadavpur, Dept of Organic Chem.: Prof. 46–54; Univ. of Wisconsin, USA: Watumull Foundation Fellow 47–49; Indian Therapeutical Works Ltd, Calcutta: Consultant 44–46; IISc, Bangalore, Dept of Chem.: Head 54–71, Dir 71–72, Hon. Prof. 72–75.

Scientific Work: Research was on total synthesis of steroidal hormones and their analogues. Reported synthesis of oestrone, a female (human) hormone in a significant paper of stereospecific synthesis of dl-equilenin (female equine hormone) and two BCD ring synthons which have been used by the French pharmaceutical industry as a base for the synthesis of nonaromatic steroidal compounds. In this investigation, described a new method for the generation of trans CD ring junction found in naturally occurring steroidal hormones. This work was followed up with new stereoselective synthesis of dl-oestrone, 8-isotestosterone, dl-testosterone (human male hormone). The cyclization behaviour of diethyl-beta-ethoxy carbonylpimelate mediated by various carbonion generating agents gave different products. The cause of these disparate results was carefully delineated. The anomalous uv absorption spectra of some dicyanoester were shown to arise from tautomerism between cyanoesters and ketimines. Used many of the physical methods like UV, IR, NMR, X-ray crystallography, ORD in work.

Memberships: Fellow: INSA 61.

Awards & Distinctions: Woodburn Gold Medal 50 • J C Ghosh Memorial Gold Medal 68 • P C Ray Memorial Bronze Medalist 71 • T R Seshadri Commoration Medal • President: Soc. of Biological Chemists • T R Seshadri Commemoration Medal.

Banerjee, Dipankar

Elected: 1992
Position: Distinguished Sci. and Chief Controller, R&D DRDO, New Delhi
Specialization: Metallurgy; Titanium Alloys; Electron Microscopy
Date and Place of Birth: 15 February 1952; Calcutta
Parents: Dilip Kumar Banerjee and Kanak
Spouse and Children: Dechamma; one *d*
Address: Defence Research & Development Organisation, 301, DRDO Bhavan, Delhi 110 011, India
Tel. (011) 2301 6640 (O), (011) 2463 5723 (R), Mobile: 98100 46183
email: dbanerjee@hqr.drdo.in

Education: IIT Madras: BTech 74; IISc, Bangalore: PhD 79.

Career: Defence Metallurgical Res. Lab., Hyderabad: Sci. 79–96, Dir 96–2003; Carnegie Mellon Univ., USA: Res. Assoc. 82–84; Los Alamos National Lab. and General Electric Corporation R&D, USA: Vis. Sci. 90; DRDO, New Delhi: Chief Controller 2003–.

Scientific Work: Contributed extensively to the understanding of the relationship between structure and properties of titanium alloys. Used advanced techniques of transmission electron microscopy such as convergent beam electron diffraction, weak beam electron microscopy, analytical electron microscopy and high resolution electron microscopy to characterize microstructure and defect structure in high temperature materials. Work on alloys based on the intermetallic Ti_3Al has established the physical metallurgy of the system and laid the basis for the development of new high temperature materials in this family of alloys.

Memberships: Fellow: INSA 94; INAE 99; NASI 2001 • Member: Indian Inst. of Metals; Materials Res. Soc. of India.

Awards & Distinctions: IASc Assoc. 85–88 • National Metallurgists Day Award 87 • DRDO Scientist of the Year Award 87 • Materials Res. Soc. of India Medal 91 • S S Bhatnagar Award 93 • IIT Madras Distinguished Alumnus 2003.

Banerjee, Kalyan

Elected: 1991
Specialization: Virology; Epidemiology; Immunology of Viral Diseases
Date and Place of Birth: 20 May 1937; Calcutta
Parent: Moni Mohan Banerjee
Spouse: Haimanti
Address: A-1-A/5-6, Sopan Baug, opp. Mantri Avenue, NCL Road, Pashan, Pune 411 008, India
Tel. (020) 2565 3680 (O), (020) 2589 9368 (R)
email: dr_k_banerjee20@yahoo.co.in

Education: Calcutta Univ.: BSc 56, MBBS 61, PhD 68.

Career: National Inst. of Virology, Pune: Sr Res. Fellow 62–65, Res. Offr 65–73, Asst Dir 73–76, Dy Dir 76–84, Dir (Grade Sci.) 84–88, Dir 88–97.

Scientific Work: Discovered and characterized three new arboviruses: viz. Barur, Chobargorge and Sripur. Described a method for the growth and quantitation of dengue group of viruses in tissue culture. Explained the phenomenon of paradoxical mortality in animals with different doses. Described genetic markers of dengue viruses, for the first time in the whole group of arboviruses. Prepared Kyasanur forest disease (KFD) vaccine in tissue culture and assessed its immunological response in humans. Carried out a vaccination programme of KFD vaccine and its evaluation. Carried out extensive field studies on the epidemiology of dengue, KFD and Chikungunya viruses, as well as on Japanese encephalitis. Prepared killed tissue culture vaccine against JE. Preparing monoclonal antibodies against dengue JE and CHIK viruses. Demonstrated strain differences of JE virus strains through biological, immunological and RNA finger-printing methods. Illustrated the spread of HIV infection in western India. Showed the presence of HIV 2 in Western India. Pointed out poverty destitution among the landless labourers in Karnataka–Maharashtra as the cause of spread of prostitution and HIV among them. Carried out investigations on epidemics of hepatitis and arrived at specific diagnoses. Showed the growth of HEV in monkeys and presence of antibodies in wild caught monkeys. Developed a serological diagnostic test for HAV.

Memberships: Fellow: INSA 91; NASI 91; Indian Virological Soc.; NAMS • Member: New York Acad. Sci.; National Security Adv. Board (2001–03) • Vice President: Maharashtra Assn Cultivation of Sci. 97–2008 • President: MACS 2009.

Awards & Distinctions: ICMR Shakuntala Amirchand Prize 70 • Dr P N Raju Oration Award, ICMR • Calcutta School of Tropical Medicine J B Chatterjee Memorial Award 93 • Om Prakash Bhasin Award 96.

Banerjee, Kedareswar*

Elected: 1941
Specialization: X-ray Crystallography
Date and Place of Birth: 15 September 1900; Sthal, Patna District, Bangladesh
Parents: Taraknath Banerjee and Sarojini Devi
Spouse and Children: Amiya; two *s*, four *d*
Last Address: Indian Association for the Cultivation of Science, 2 & 3 Lady Willingdon Road, Calcutta 700 032, India
***Deceased:** 30 April 1975

Education: Univ. of Calcutta: BSc Hons 21, MSc 23, DSc 29.

Career: IACS, Calcutta: Res. Scholar 24; Chittagong Medical College: Lecturer 27–28; India Meterological Dept: 28; Univ. of Dhaka: Reader 34; IACS Calcutta: Mahendra Lal Sircar Prof. 43–52; Dir 59–65; Physics Sec. of the Indian Sc. Congress: President 47; Indian Physical Soc: Secretary 47–50; Univ. of Allahabad: Prof. 52–59.

Scientific Work: Contributions on diffraction of X-rays by liquids and the determination of the atomic arrangements in the crystals of naphthalene and anthracene. The latter work drew attention of the X-ray crystallographers as well as organic chemists abroad as it opened up the field of analysis of the atomic structures of aromatic crystals. Developed an algebraic method for directly determining the signs of the terms appearing in the Fourier series in the determination of structure of crystals.

Memberships: Fellow: INSA; Indian Assn for the Cultivation of Sci. • President: Indian Sci. Congress Phys. Sci. 47.

Awards & Distinctions: Griffith Memorial Prize 26.

Banerjee, Manoj Kanti*

Elected: 1977
Specialization: Nuclear Physics
Date of Birth: 25 May 1931
Spouse and Children: Uma; one *s*
Last Address: Department of Physics, University of Maryland, College Park, Maryland 20742-4111, USA
***Deceased:** 18 February 2006

Eduction: Patna Univ: BSc 49; Calcutta Univ.: MSc 51, PhD 56.

Career: Saha Inst. of Nuclear Phys.: Lecturer 52–57, Reader 57–60, Prof. 60–66; Princeton Univ., USA: Vis. Fellow 55–57, Res. Assoc. 59–60; Weizmann Inst. of Sc., Israel: Weizmann Fellow 62–63; Univ. of Maryland, USA: Vis. Prof. 66–67, Prof. 67; Univ. of Manchester: Vis. Prof. 73–74.

Scientific Work: Research on pairing versus quadruple interactions in nucleon–nucleon pairs; contributed to understanding many important properties of even–even nuclei. Successfully employed concepts and techniques of high energy physics for understanding of many nuclear phenomena traditionally associated with low energy methods.

Memberships: Fellow: American Physical Soc.

Awards & Distinctions: Humboldt Research Award 96.

Banerjee, Ranajit Kumar

Elected: 1993
Specialization: Molecular Enzymology; Membrane Biochemistry; Cell Biology
Date and Place of Birth: 23 March 1944; Calcutta
Parents: Debendranath Banerjee and Sabitri
Spouse and Children: Rajyasree; one *s* (Soumya)
Address: Nature's Nest, Flat No. 1G, 140, PGH Shah Road, Kolkata 700 032, India
Tel. (033) 2413 0396 (R), Mobile: 98303 37787
email: ranajitb@yahoo.com, ranajit_banerjee@rediffmail.com

Education: Calcutta Univ.: BSc Hons 65, MSc 67, PhD 72.

Career: IICB, Calcutta: CSIR Res. Fellow 68–73; Pool Offr 77–78, Sci. 78–2004; Holt Radium Inst., Manchester: Vis. Sci. 73–74; Cornell Univ., New York: Res. Assoc. 74–77.

Scientific Work: Identified the potential role of distal histidine-42 in horseradish peroxidase-catalysed iodide and aromatic donor oxidation. Identified and characterized a highly active peroxidase in gastric mucosa that protect it from oxidative damage. Irreversible inactivation of this enzyme by hydroxyl radical is one of the causative factors in gastric ulceration caused by deranged oxidative metabolism. Showed that mercaptomethylimidazole, an antithyroid drug, induces gastric acid secretion by acting as a suicidal substrate of the parietal cell peroxidase. Established the involvement of oxidative damage and apoptosis in gastric ulcer and that omeprazole protects it by its novel antioxidative and apoptotic effect. Isolated a potent anti-ulcer glycoside from neem bark having potentiality in drug development.

Important Publications: **(1)** Mechanism of horseradish peroxidase-catalysed conversion of iodine to iodide in presence of EDTA and H_2O_2 (1989) *J. Biol. Chem.* **264**, 9188–9194. **(2)** Chemical and kinetic evidence for an essential histidine in horseradish peroxidase for iodide oxidation (1992) *J. Biol. Chem.* **267**, 9800–9804. **(3)** Hydroxyl radical is the major causative factor in stress-induced gastric ulceration (1997) *Free Radic. Biol. Med.* **23**, 8–18. **(4)** Low catalytic turnover of horseradish peroxidase in thiocyanate oxidation. Evidence for concurrent inactivation by cyanide generated through one-electron oxidation of thiocyanate (1997) *J. Biol. Chem.* **72**, 11049–11056. **(5)** A novel antioxidant and antiapoptotic role of omeprazole to block gastric ulcer through scavenging of hydroxyl radical (2003) *J. Biol. Chem.* **278**, 10993–11001.

Memberships: Life Member: Soc. of Biological Chemists (India); Indian Soc. of Cell Biology, Indian Science Congress Assn • Fellow: NASI 97; INSA 98.

Banerjee, Soumitro

Elected: 2006
Position: Prof., IISER, Kolkata
Specialization: Bifurcation theory; Switching Dynamical Systems
Date and Place of Birth: 17 October 1960; Kolkata, West Bengal
Parents: Santhosh Kumar Banerjee and Jyotsna
Spouse and Children: Manua; one *s*, one *d* (Kiran, Anita)
Address: Department of Physical Sciences, Indian Institute of Science Education and Research - Kolkata,
Mohanpur Campus, Nadia 741 252, India
Tel. (033) 250 25380 (R), Mobile: 94340 29433
email: soumitro.banerjee@gmail.com; URL: http://www.iiserkol.ae.in/people/faculty/soumitro_banerjee/home.html

Education: Calcutta Univ.: BE 81; IIT Delhi: MTech 83; PhD 88.

Career: IIT Kharagpur: Lecturer 86–90, Asst Prof. 90–98, Assoc. Prof. 98–2003, Prof. 2003–2009; IISER Kolkata: Prof. 2009–.

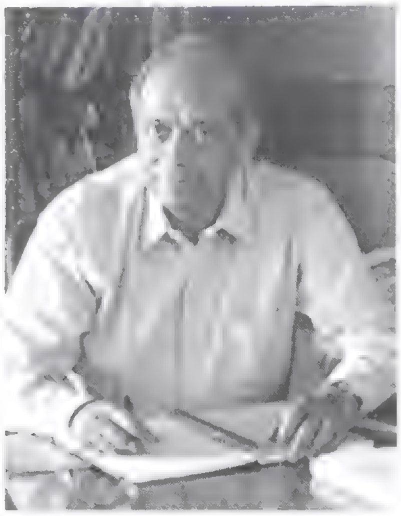
Scientific Work: Research focusses on the nonlinear phenomena called bifurcations, where the dynamical behaviour of a system changes qualitatively with the variation of a system parameter. Mainly concentrated on 'hybrid dynamical systems' like switching electronic circuits and mechanical systems with impacts or stick-slip motion, which involve continuous-time evolution punctuated by discrete switching events. Pioneering contribution has been in demonstrating that such systems undergo a special kind of dynamical transformation, known as border collision bifurcation. Instrumental in developing the mathematical theory of border-collision bifurcations, which has been widely used in various application areas to understand why certain abrupt and drastic changes occur in the dynamical state of a system. Has also been in the forefront of the investigations on the nonlinear phenomena in power electronics.

Important Publications: **(1)** *Nonlinear phenomena in power electronics: Attractors, bifurcations, chaos, and nonlinear control* (2001) IEEE Press. **(2)** *Dynamics for Engineers* (2005) John Wiley, London. **(3)** *Wind electrical systems* (2005) Oxford University Press, New Delhi. **(4)** Robust chaos (1998) *Phys. Rev. Lett.* **80**, 14, 3049–3052. **(5)** Border collision bifurcations in two-dimensional piecewise smooth maps (1999) *Phys. Rev.* **E59**, 4, 4052–4061.

Memberships: IEEE; Breakthrough Sci. Soc.; INAE 2004; INSA 2008.

Awards & Distinctions: DST Boyscast 93, 96 • S S Bhatnagar Prize 2003 • Citation Laureate Award 2004 • IEEE Gouri Memorial Award.

Banerjee, Srikumar



Elected: 1990
Position: Dir, BARC, Mumbai
Specialization: Materials Science; Physical Metallurgy; Phase Transformations; Nuclear Materials; Nuclear Fuel Cycle; Reactor Engineering
Date and Place of Birth: 25 April 1946; Calcutta
Parents: Narayan Chandra Banerjee and Santi
Spouse and Children: Ranjana; one *s*
Address: Bhabha Atomic Research Centre, Trombay, Mumbai 400 085, India
Tel. (022) 2550 5300 (O), (022) 2556 8791 (R)
email: director@barc.gov.in, sbanerji@barc.gov.in

Education: IIT Kharagpur: BTech Hons 67, PhD 74.

Career: BARC, Bombay: Sci. Offr 68–90, Head, Metallurgy Dn 90–96, Assoc. Dir, Materials Group 96–2001, Dir, Materials Group 2001–04, Dir, 2004–; Univ. of Sussex, Brighton, England: Sr Vis. Fellow 78–79; Max-Planck Institut fur Metallforschung, Institut fur Physik: Vis. Sci.; Alexander von Humboldt Foundation Fellow 79–80; The Ohio State Univ., Columbus: Vis. Faculty (short stays during 96–2003).

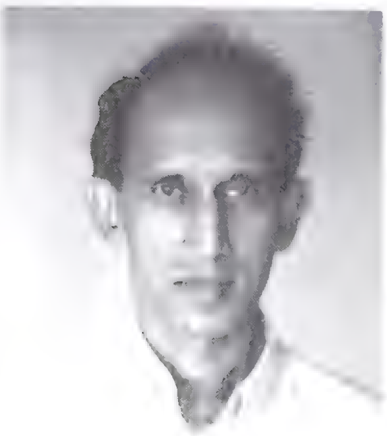
Scientific Work: Work on phase transformations in zirconium and titanium alloys has covered the entire spectrum of solid state phase tranformations including those occurring in conditions far from equilibrium. Showed how some of the first order phase transformations in alloys can occur through the amplification of fluctuations in concentrations, in displacements or in both. Experimental and theoretical work has quantitatively established the role of radiation in ordering and disordering processes in alloys and the evolutionary path through which long range order develops in some alloys. Examined several innovative fuel cycles including those involving thorium utilization.

Important Publications: **(1)** An ordered omega-phase in the rapidly solidified Zr-27 at% Al alloy (1983) *Acta Metall.*, **31**, 1721. **(2)** Order-disorder transformation in Ni_4Mo under electron irradiation in a high voltage electron microscope (1984) *Acta Metall.* **32**, 299. **(3)** Initial stages of ordering in Ni_3Mo thermal and irradiation ordering experiments (1989) *Acta Metall.* **37**, 35. **(4)** A first-principles thermodynamics approach to ordering in Ni–Mo alloys (2001) *Acta Mater.* **49**, 3575. **(5)** *Phase transformations: Examples from titanium and zirconium alloys* (2007) Pergamon Series Materials Science, Elsevier Publishers.

Memberships: Member: Indian Nuclear Soc.; Indian Physics Assn; The Indian Inst. of Metals; Materials Res. Soc. of India • Fellow: Asia Pacific Acad. of Materials; INSA 92; INAE; NASI 2002; TWAS 2007.

Awards & Distinctions: INSA Medal for Young Scientists 76 • National Metallurgists Day Award 81 • S S Bhatnagar Prize in Engineering Sciences 89 • MRSI Medal 90 • G D Birla Gold Medal 97 • INSA Prize for Materials Sci. 2001 • MRSI, Superconductivity and Materials Science Prize 2003 • Indian Nuclear Soc. Award 2003 • Alexander von Humboldt Res. Award 2004 • Distinguished Alumnus Award, IIT Kharagpur 2005 • Padma Shri Award 2005 • MRSI Distinguished Materials Scientist Award 2008.

Banerjee, Sunanda



Elected: 2002
Position: Prof., Sci., Fermi Lab, USA
Specialization: Experimental High Energy Physics
Date and Place of Birth: 20 July 1952; Calcutta
Parents: Subrata and Asrukana Banerjee
Spouse Sikha (Nandi)
Address: MS 234, Fermi Lab, P.O. Box 500, Batavia, Illinois 60510, USA
Tel. (+1-630) 840 6737 (O), (+1-630) 857 3708 (R), Mobile: (+1-630) 800 5922
email: sunanda@fnal.gov

Education: Presidency College (Calcutta Univ.): BSc Physics (Hons) 71; Imperial College, London: PhD from Univ. of London: DIC Physics 76.

Career: Imperial College: Res. Assoc. 75–77; TIFR: Vis. Fellow 78, Reader 87–91, Assoc. Prof. 91–97, Prof. 97–2006; Sr Prof. 2006–07; Kernforschungszentrum Karlsruhe: Guest Sci.: 81–82; CERN: Assoc. 86–88, 96–97; 2003–04; World Laboratory: Instructor 88–90; Fermilab: Sci. 2007.

Scientific Work: Working in the field of experimental high energy physics, participating in the multi-institutional international collaborations and taking a leadership role in both physics analysis and software developments. Leading expert in the off-line data analysis for the L3 experiment designing and implementing many of the tools needed to interpret the detector signals in term of physics models. Leading contributor in the simulation effort of the CMS experiment which has provided global recognition and identity of the Indian participation in these giant multinational collaborations. Studied quantum chromodynamics, the theory of strong interactions, over three decades. In a neutrino experiment, the energy dependence of the structure function revealed deviation from quark–parton model and provided the first quantitative evidence of QCD. In the electron–positron colliding beam experiment (CELLO) at PETRA, the gluon spin was evaluated and the strong coupling constant was measured. The measurement of coupling constant depends on the fragmentation model. In the L3 experiment at LEP, the structure of hadronic events was studied in detail leading to better definition of hadronic models and a precise measurement of the strong coupling constant. A study of the energy dependence of the cross-section and asymmetry near the Z mass provided precision measurements of various Z parameters and tested the standard model at 0.1% accuracy. The number of light neutrino families was precisely determined and an indirect measurement of top quark mass could be obtained. Led the Indian participation in the CP violation experiment in the asymmetric B-factory at KEK, Japan and trained many young people in experimental high energy physics.

Important Publications: **(1)** Analysis of nucleon structure functions in CERN bubble chamber neutrino experiments: Aachen Bonn CERN London Oxford Saclay Collaboration (1978) *Nuclear Phys.* **B142**. **(2)** The Influence of fragmentation models on the determination of the strong coupling constant in e^+e^- annihilation into hadrons: CELLO collaboration (1983) *Nuclear Phys.* **B21**8, 269. **(3)** Charm hadron properties in 400 GeV/c *pp* interactions: LEBC EHS collaboration (1988) *Z. Phys.* **C40**, 321. **(4)** Measurement of electroweak parameters from hadronic and leptonic decays of the *Z*: L3 collaboration (1991) *Z. Phys.* **C51**, 179. **(5)** Determination of alpha from hadronic event shapes measured on the *Z* resonance: L3 collaboration (1992) *Phys. Lett.* **B284**, 471.

Memberships: Fellow: INSA 2005.

Awards & Distinctions: IASc Assoc. 85–88.

Banerji, Ilabonto*

Elected: 1949
Specialization: Cytology; Embryology
Date and Place of Birth: 27 May 1898; Calcutta, West Bengal
Parent: S C Banerji
Children: two *s*, one *d*
Last Address: 131, Harish Mukherji Road, P. O. Kalighat, Calcutta 700 026, India
***Deceased:** 31 January 1971

Education: Univ. of Calcutta: BSc Hons 20, MSc 22, DSc 45.

Career: Imperial Agri. Res. Inst.: Res. Student in Botany 22; Coimbatore Agri. Res. Inst.: 23–26; Central College, Bangalore: Sr Res. Scholar 26, Inst. of Plant Industry, Indore: Sr Res. Scholar 26–28, Univ. of Calcutta, Dept of Botany: Ghosh Res. Scholar 28, Lecturer of Botany 29–56; Reader and Head 56–60.

Scientific Work: Worked on the cytogenetics and breeding of several important Indian crop plants of which cotton and jute were probably the most significant. Observations on the reproductive biology of *Eichhornia crassipes* and on the controversy on embryosac type in *Carica papaya* created interest in the embryology of angiosperms. Valuable contributions comprise the cytology and/or embryology of species belonging to about twenty plant families, including observations on morphology of inflorescence, flower and fruit, and the mode of development of endosperm as well as embryogeny in a number of them. Studies on the life history of *Barbula indica* along with some of the predoctoral research scholars covering the morphology, anatomy, life history and cytogenetics of Polypodiaceae and Parkeriaceae, flora of Manipur, anatomy and taxonomy of grass of 24-Paraganas, etc. need particular mention.

Memberships: Fellow: INSA 45.

Banerji, Sudangsu Kumar*

Elected: 1934
Specialization: Mathematical Physics; Geophysics; Meteorology
Date and Place of Birth: 27 April 1893; Malpadia, Dikrampur, Bangladesh
Parent: Harihar Banerji
Children: three *s*
Last Address: No. 3, Ramari Chatterji Road, P.O. Rash Behari Avenue, Calcutta 700 029, India
***Deceased:** 10 August 1966

Education: Presidency College, Calcutta: BSc, MSc; Calcutta Univ.: DSc 18.

Career: Univ. of Calcutta, Dept of Applied Maths: Prof. 19–22; Colaba and Alibag Observatory, India Meteor. Dept, Bombay: Dir 23–32; Royal Inst. of Sci., Bombay: Hon. Prof.; India Meteor. Dept, Poona: Superintendent

Meteorologist and Officiating Dir-General of Observatories 33–42; Upper Air Office, New Delhi: Superintending Meteorologist 42–44; Dir General of Observatories, New Delhi 44–50; College of Engineering and Technol., Jadavpur Univ., Dept of Maths: Prof. and Head 50–56; Prof. Emeritus 56.

Scientific Work: Best contributions were on the impact of mountain ranges on the monsoon circulation, seismology and several aspects of physical meteorology related to precipitation mechanisms. Computed the distortion of streamlines in the vicinity of the mountains along the northeast and northwest sectors of the Indian subcontinent. This was later extended to Western Ghats. Classic paper on seismology computed the relation betweeen the amplitude of waves as they reached the earth's surface from the earth's interior and the depth of their focus. Later the theory was extended to the study of microseisms and postulated that they were an outcome of gravity waves impinging on a seabed.

Memberships: Fellow: INSA 35 • President: Indian Mathematical Soc.; R. Meteor. Soc.

Awards & Distinctions: OBE in King's Birthday List 43.

Bansal, Manju

Elected: 1998
Position: Prof., IISc, Bangalore
Specialization: Computational Structural Biology; Computational Genome Analysis; Biomolecular Modelling
Date and Place of Birth: 1 December 1950; Dehradun, Uttarakhand
Parents: R K Bansal and Savitri
Spouse: Indraneel Sen
Address: Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2534 (O), (080) 2341 9971 (R), Mobile: 98452 37560
email: mb@mbu.iisc.ernet.in; URL: http://nucleix.mbu.iisc.ernet.in

Education: Osmania Univ., Hyderabad: BSc 70, MSc 72; IISc, Bangalore: PhD 77.

Career: IISc, Bangalore: Res. Assoc. 77–81; EMBL Germany: Humboldt Fellow 81–82; IISc, Bangalore: Lecturer 82–87, Asst Prof. 87–93, Assoc. Prof. 93–98, Prof. 98–.

Scientific Work: The main thrust of research has been towards a better understanding of the structural variability of DNA and its role in biological function. A multipronged approach including model-building and molecular mechanics techniques has been adopted. Several new analytical tools have been developed. The DNA structure analysis packages, NUPARM and generation program NUCGEN have been used to rationalize the variations observed in oligonucleotide crystals as well as to predict sequence-dependent DNA curvature in regulatory regions of genomic DNA. A new algorithm for promoter identification PROMPREDICT has been developed which has been very successful in identifying promoter regions in prokaryotes as well as eukaryotes. Identification of helices in protein structures is another area of significant contribution.

Important Publications: **(1)** A hypothesis on the role of hydroxyproline in stabilizing the collagen structure (1973) *Biochim. Biophys. Acta* **322**, 166–171. **(2)** Conformational flexibility of DNA: Polymorphism and handedness (1980) *Proc. Natl. Acad. Sci. USA* **77**, 6486–6490. **(3)** Hairpin and parallel quartet structures for telomeric sequences (1992) *Nucl. Acids Res.* **20**, 4061–4067. **(4)** CATG sequence at the 5'end of oligo(A)-tracts strongly modulates DNA curvature (1994) *J. Biol. Chem.* **269**, 7824–7833. **(5)** NUPARM and NUCGEN: Software for analysis and generation of sequence-dependent nucleic acid structures (1995) *CABIOS* **11**, 281–287.

(6) Structural properties of promoters: Similarities and differences between prokaryotes and eukaryotes (2005) *Nucl. Acids Res.* **33,** 3165–3175.

Memberships: Member: Guha Res. Conf.; Indian Biophysical Soc.; Soc. for Biological Chemists; Intl Crystallographic Soc. • Fellow: NASI 98; INSA 2009.

Awards & Distinctions: IISc J C Ghosh Medal 75 • INSA Young Scientist Medal 79.

Bapat, Ravindra Bhalchandra

Elected: 2000
Position: Prof., ISI, New Delhi
Specialization: Combinatorial Linear Algebra; Generalized Inverses
Date and Place of Birth: 20 December 1954; Mumbai
Parents: Bhalchandra S Bapat and Usha
Spouse and Children: Ragini; one *s* (Sudeep)
Address: Indian Statistical Institute, 7, SJS Sansanwal Marg, New Delhi 110 016, India
Tel. (011) 4149 3900 (O), (011) 2685 2513 (R)
email: rbb@isid.ac.in, rbbapat@rediffmail.com

Education: Univ. of Bombay: BSc 74; ISI, Delhi: MStat 76; Univ. of Illinios, Chicago, USA: PhD 81.

Career: Northern Illinois Univ.: Asst Prof. 80–81; Univ. of Bombay: Lecturer 81–83; ISI, Delhi: Lecturer 83–87, Assoc. Prof. 87–91, Prof. 91–.

Scientific Work: Work contains manifestations of linear algebra and matrix theory in many different areas including non-negative matrices, positive definite matrices, matrix inequalities, generalized inverses and matrices in graph theory. Notable contributions include solutions of a long-standing conjecture of Brualdi and Foregger, which asked for a description of non-negative matrices which have all permanental cofactors equal, and a conjecture of Karlin and Rinott, asserting that in the case of a multinomial distribution with parameters varying over trials, the entropy is maximized when all parameters are equal. With co-workers, worked on several aspects of the Moore–Penrose inverse.

Important Publications: **(1)** *Linear algebra and linear models* (1992) Hindustan Book Agency and Springer. **(2)** *Nonnegative matrices and applications* (1998) Cambridge Univ. Press.

Memberships: Fellow: INSA 2005 • President: Indian Mathematical Soc. 2007–08.

Awards & Distinctions: J C Bose Fellowship 2009.

Bappu, Manali Kallat Vainu*

Elected: 1960
Specialization: Astronomy
Date and Place of Birth: 10 August 1927; Madras, Tamil Nadu
Parents: Manali Kakuzi Bappu and Sunanna
Spouse: Yemuna
Last Address: Indian Institute of Astrophysics, Bangalore 560 034, India
***Deceased:** 19 August 1982

Education: Univ. of Madras: BSc 46, MSc 49; Harvard Univ., USA: AM (Astronomy), PhD 52.

Career: Harvard Univ., USA: 49–51; Hale Observatory: Carnegie Fellowship 52; Nizamiah Observatory, Hyderabad: Sr Res. Fellowship 54; UP State Observatory, Nainital: Chief Astronomer 54–60; Kodaikanal Observatory: Dir 60–71; IIA: Dir 71–82.

Scientific Work: Well known for the discovery of the Bappu–Bok–Newkirk Comet and the Wilson–Bappu effect, which led to the determination of stellar distance. Research areas covered physics of the sun, stars, and solar system; physical phenomena in galactic and extragalactic systems; and astrophysical techniques. Main scientific contributions are on the physics of the sun and the stars, on the physics of the solar system, physical phenomena in galactic and extragalactic systems and astrophysical observational techniques. Led four expeditions for observing the total eclipse of the sun. Played a leading role in the discovery of the rings around the Uranus by Indian astronomers in 1977. Engaged in the design and construction of Asia's largest telescope (ninety-three inches) and its installation at Kavalur.

Memberships: Member: Belgium R. Soc. of Sci.; Astronomical Soc. of India • President: Intl Astronomical Union • Fellow: INSA 68.

Awards & Distinctions: Donohoe Comet Medal 49 • S S Bhatnagar Prize 71 • Hari Om Ashram Award 77 • UGC Meghnad Saha Award 77 • Padma Bhushan 81 • Satyendra Nath Bose Medal 83.

Bardhan, P N*

Elected: 1965
Specialization: Pathology
Date of Birth: 12 March 1906
Last Address: Armed Force Medical College, Poona 411 001, India
***Deceased:** 12 August 1966

Education: LM, DPH; Univ. of Edinburgh: MRCP, FRCP.

Career: Armed Forces Medical College, Poona: Commandant.

Scientific Work: Dealt with haemophilia, clinical aspects of transmission of the effects of nervous impulses by acetyl choline, eosinophilia, Reiter's disease, transfusion gelatin, folbutamide in the treatment of angina pectoris therapeutic trauma and erythromycin sensitivity of bacteria.

Barma, Mustansir

Elected: 1991
Position: Distinguished Prof., Dir, TIFR, Mumbai
Specialization: Statistical Physics
Date and Place of Birth: 27 December 1950; Bombay, Maharashtra
Parents: Abdeally and Meryam
Spouse and Children: Rashida; two *s*
Address: Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2306 (O), (022) 2202 1154 (R)
email: barma@theory.tifr.res.in; URL: http://theory.tifr.res.in/~barma/

Education: Bombay Univ.: BSc 70; State Univ. of New York: PhD 74.

Career: Michigan State Univ.: Res. Assoc. 74–76; TIFR, Bombay: Vis. Fellow 76–77, Fellow 77–84, Reader 84–90, Assoc. Prof. 90–95, Prof. 95–2002, Sr Prof. 2002–, Chair, Dept of Theoretical Physics 2004–07, Dir 2007–.

Scientific Work: Discovered and proved in stochastic deposition-evaporation systems, infinitely many conservation laws responsible for broken ergodicity and diversity in dynamical behaviour. Discovered nonlinearity-induced multiplicative logarithms to modify power law growths in interface dynamics. Demonstrated nonmonotonic dependences of the drift velocity on applied field to govern transport of classical particles in random networks. Calculated size-dependent properties of a finite Fermi gas, focussing on the thermodynamic scaling implications of having two size-induced energy scales, and the radius-dependent broadening of the Mie resonance. Worked on correlated electronic systems, low-temperature properties of magnetic systems, critical phenomena in scalar spin systems and directed percolation and animals.

Memberships: Fellow: INSA 98; NASI 98; TWAS 2006.

Awards & Distinctions: INSA Young Scientist 80 • IASc Assoc. 83–86 • S S Bhatnagar Prize 95.

Barnabas, John*

Elected: 1976
Specialization: Molecular Evolution
Date and Place of Birth: 12 October 1929; Mangalore
Parents: Nathaniel Barnabas and Elizabeth
Spouse and Children: Shama; one *s*, one *d*
Last Address: Biochemical Sciences, National Chemical Laboratory, Pune 411 008, India
***Deceased:** 30 July 1994

Education: Univ. of Madras: BSc 51, Univ. of Bombay: MSc 54, Univ. of Poona: PhD 56.

Career: Yale Univ., USA: Postdoc Fellow 58–59; Univ. of Gromingen, Netherlands: Postdoc Fellow 60–61; Ahmednagar College: Lecturer 56–58, Asst Prof. 58–61, Prof. 61–72, Head, Dept of Biochem. 72–83; NCL, Pune: Jawaharlal Nehru Fellow 83–85, Head, Dn of Biochemical Sci. 85–92, CSIR Distinguished Fellow 92–94.

Scientific Work: Used the haemoglobin molecule for probing biochemical evolution. Established through a study of 53 animal species including mammals, birds, reptiles, amphibians and teleost fishes, that multiple haemoglobins occurred widely in vertebrates. Demonstrated the presence of many electrophoretically silent haemoglobins as well as the presence of a common polypeptide chain among species haemoglobins through fingerprint maps of a number of haemoglobins at the subunit level in the mammalian families Bovidae and Muridae. Observed significantly the invariant two alpha-chain profile in haemoglobins in water buffalo which was shown to be a product of duplicated genes, through a wider species coverage as well as by their expression in the foetal haemoglobins. Realised that in order to discern the evolutionary relationships between species haemoglobins, the sequences of the component polypeptide chains as well as appropriate approaches for constructing phylogenetic trees based on the sequence data were needed. Contributed to the determination of the sequence of alpha and beta globins of the langur, *Presbytes entellus*. Constructed phylogenetic trees of globin sequences which established that haemoglobin-myoglobin gene duplication probably took place after the divergence of lampreys, the alpha-beta gene duplication in the primitive fishes and the beta-gamma duplication in the higher primate line. Based on these and other approaches discerned the evolution and descent of globin genes from their metazoan ancestor in the descent of man. Developed a simple parsimony method called zip method, for the construction of ancestral sequences for a set of macromolecular sequences by hand-search operations. Using this method deduced the evolutionary genetics of mammalian globins as well as the basic patterns of mammalian evolution during Cenozic history and the functional innovations in emoglobin molecule as it evolved from a monomer having high oxygen affinity and low co-operativity to a tetramer having low oxygen affinity and high co-operativity.

Memberships: Member: Science Advisory Committee to Cabinet • Fellow: INSA 79.

Awards & Distinctions: S S Bhatnagar Award 74 • Srinivasayya Memorial Award 76 • Jawaharlal Nehru Fellowship 83–85.

Barnard, T W*

Elected: 1934
Last Address: Government General Hospital, Madras, India

Education: MSR, FRPS, FRSA.

Career: Inst. of Radiology, Govt General Hospital, Madras: Radiologist.

Important Publications: **(1)** The importance of radiography in doubtful cases of optic atrophy with special reference to pituitary disease (1923) *J. Opthalmol.* **7**, 3, 123–138. **(2)** Illustrated notes from the early days of radiography (1967) *Radiography* **33**, 395, 234–238.

Barua, Asok Kumar

Elected: 1987
Position: Emeritus Prof., IACS, Kolkata
Specialization: Solid State Materials; Thin Film Technology; Thin Film Solar Cells
Date and Place of Birth: 1 July 1936; Calcutta
Parents: Benimadhab and Pankaja
Spouse: Bandana
Address: Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 6612 (O), (033) 2477 2033 (R), Mobile: 98300 59351
email: eruakb@yahoo.com

Education: Calcutta Univ.: BSc Hons 54, MSc 56, PhD 60.

Career: Brown Univ., Rhode Island, USA: Res. Assoc. 61–63; FOM-Inst. for Atomic and Molecular Phys., Holland: Guest Sci. 67–68; IACS: Reader 64–71, Prof. 71, Dir 82–89; BHEL: Adviser 93–.

Scientific Work: Contributed in the areas of materials and fabrication technology of amorphous silicon solar cell. State-of-the-art a-Si:H films and its low and high band gap alloys have been developed. Similar contribution has been made in the area of microcrystalline Si:H films. With these materials, single and multijunction a-Si solar cells have been fabricated with conversion efficiencies comparable to the best obtained internationally.

Memberships: Member: Advisory Committee of Govt of India Ministry for Non-Conventional Energy Sources; Council of Solar Energy Soc. of India; West Bengal Acad. of Sc. and Technology • President: Indian Physical Soc.

Awards & Distinctions: MRSI Medal Lecture 91 • ICSC Materials Science Prize, MRSI 96 • Photovoltaic Science and Engineering Conf. National Award 98.

Basak, Amit

Elected: 2006
Position: Prof., IIT Kharagpur
Specialization: DNA Interacting Agents; Asymmetric Synthesis; Enzymology
Date and Place of Birth: 4 April 1952; Murshidabad, West Bengal
Parents: Nritya Lal Basak and Maya
Spouse and Children: Nupur; one *s*, one *d*
Address: Department of Chemistry, Indian Institute of Technology, Kharagpur 721 302, India
Tel. (03222) 28 3300 (O), (03222) 28 3301 (R), Mobile: 94340 13294
email: absk@chem.iitkgp.ernet.in

Education: Calcutta Univ.: BSc 72, MSc 74, PhD 82; Oxford Univ., UK: DPhil 86.

Career: Presidency College, Kolkata: Asst Prof. 80–90; IIT Kharagpur: Asst Prof. 91–96, Assoc. Prof. 96–2004, Prof. 2004–, Chmn 2005–08.

Scientific Work: Research activities centre on the interface of chemistry and biology. Working on three important areas: search for lead compounds of medicinal importance, synthesis of chiral bioactive molecules using chemical and enzymatic catalysis and mapping of functional domains in proteins. Enediyne class of molecules selected for drug discovery programme. The chemistry of these molecules is based on their ability to undergo Bergman and related cyclizations leading to the generation of biradicals. Understanding the factors that control the kinetics of this reaction is of paramount importance as this will help in the successful design of unnatural enediynes. Developed methods to synthesize chiral-lactams in enantiomeric form employing both chemical as well as enzymatic methods. Also addressed the issue of active site mapping for one of the most widely used enzymes namely PPL.

Important Publications: **(1)** Design, synthesis, and biological activity of unnatural enediynes and related analogues equipped with pH-dependent or phototriggering devices (2007) *Chem. Rev.* **14**, 2861. **(2)** Synthesis and reactivity of a 9-membered azaenediyne: Importance of proximity effect in *N*-alkylation (2006) *Chem. Commun.* 1646. **(3)** Activation of macrocyclic enediynes by transannular cyclization (2004) *Angew. Chemie Int. Ed.* **44**, 132. **(4)** Chelation-controlled Bergman cyclization: Synthesis and reactivity of enediynyl ligands (2003) *Chem. Rev.* **10**, 4077. **(5)** The synthesis and reactivity of novel azetidinyl enediynes (1996) *Chem. Commun.* 749.

Awards & Distinctions: Chemical Res. Soc. of India Medal • Bhuban Mohini Subarna Padak Winner.

Basavaiah, Deevi

Elected: 1997
Position: Prof., Univ. of Hyderabad
Specialization: Organic Chemistry: Baylis–Hillman Chemistry; Chiral Catalysis
Date and Place of Birth: 11 August 1950; Tenali, Andhra Pradesh
Parents: Deevi Nageswara Rao and Deevi Vittal Koteswaramma
Address: School of Chemistry, University of Hyderabad, Hyderabad 500 046, India
Tel. (040) 2313 4812 (O), (040) 2301 0977 (R)
email: dbsc@uohyd.ernet.in

Education: Andhra Univ.: BSc 70; Banaras Hindu Univ.: MSc 72; PhD 79.

Career: Purdue Univ.: Postdoc Fellow 80–83; NCL, Pune: Sci. 84; Univ. of Hyderabad: Lecturer 84–87, Reader 87–96, Prof. 96–.

Scientific Work: Main objective of research has been development of the Baylis–Hillman reaction (a novel carbon–carbon bond forming reaction) as one of the most useful synthetic tools in synthetic chemistry. Worked in biotransformations where operationally simple and convenient methodologies for synthesis of a variety of enantiomerically pure molecules using liver-acetone powders as biocatalysts, thus demonstrating the synthetic potential of crude enzymes in organic synthesis. Some of these enantiomerically pure molecules have been successfully employed as chiral auxiliaries for asymmetric synthesis of some important molecules. Teaches and trains MSc (Chemistry) students at the Univ. of Hyderabad.

Important Publications: **(1)** Dimethyl sulfide induced [3+2] annulation strategy: An efficient synthesis of functionalized dihydropyrazole derivatives using the Baylis–Hillman bromides (2008) *Org. Lett.* **10**, 1819–1822. **(2)** An expedient, facile, and simple one-pot synthesis of 2-methylene-alkanoates and alkanenitriles from the Baylis–Hillman bromides in aqueous media (2007) *Nat. Protocols* **2**, 2665–2676. **(3)** The Baylis–Hillman acetates as a valuable source for one-pot multistep synthesis: a facile synthesis of functionalized tri–tetracyclic frameworks containing azocine moiety (2007) *Org. Lett.* **9**, 2453–2456. **(4)** The Baylis–Hillman reaction: A novel source of attraction, opportunities, and challenges in synthetic chemistry (2007) *Chem. Soc. Rev.* **36**, 1581–1588. **(5)** Recent advances in the Baylis–Hillman reaction and applications (2003) *Chem. Rev.* **103**, 811–891.

Memberships: Fellow: INSA 2006.

Awards & Distinctions: A P National Scholarship 70 • BHU Gold Medal 72 • Prof. T R Govindachari 60th Birthday Commemoration Endowment Award in Organic Chemistry 99–2000 • CRSI Bronze Medal 2000 • CRSI Silver Medal 2008 • J C Bose Fellowship 2008 • National Best Teacher Award in Chemistry 2008 (sponsored by A V Rama Rao Res. Foundation in association with IICT and A P Acad. of Sci.).

Baskaran, Ganapathy

Elected: 1989
Position: Prof., IMSc, Chennai
Specialization: Theoretical Physics; Strongly Correlated Electronic Systems; Quantum Processes in Biology
Date and Place of Birth: 22 August 1948; Periyakulam, Tamil Nadu
Parents: Srinivasan Ganapathy and Leelavathy
Spouse and Children: White Rose; one *s*, two *d*
Address: The Institute of Mathematical Sciences, CIT Campus Taramani, Chennai 600 113, India
Tel. (044) 2254 3303 (O), (044) 2451 0504 (R)
email: baskaran@imsc.res.in

Education: Univ. of Madras: BSc 68; Madurai Univ.: MSc 70; IISc, Bangalore: PhD 76.

Career: Univ. of Madras, Dept of Phys.: Reader 79–82; SISSA and ICTP, Trieste, Italy: Vis. Prof. 82–84; Princeton Univ., Phys. Dept: Res. Staff 84–87; IMSc, Madras: Prof. of Phys. 87–.

Scientific Work: Contributions are in the field of strongly correlated quantum matter, specifically theory of high temperature superconductivity in cuprates and new exotic superconductors. Developed the resonating valence bond mechanism of high T_c superconductivity into a theory. RVB mean field theory and RVB gauge theory stand out as key and fundamental contributions in the field of strongly correlated systems. Predicted *p*-wave superconductivity in Sr_2RuO_4. This prediction was confirmed experimentally. Elucidated mechanism of superconductivity in organic superconductors using RVB theory and in the process has suggested pressure-induced superconductivity in several Mott insulators. Elucidated mechanism of superconductivity in new superconductors: MgB_2, $YNiB_2C_2$, Sr_2RuO_4, boron-doped diamond, $NaxCoO_2.yH_2O$, Fe pnictide superconductors. Predicted a spin-1 collective mode in graphene, composite Fermi sea state in neutral graphene in magnetic field and room temperature superconductivity in optimally doped graphene. Made fundamental contribution to our understanding of Kitaev model, a key quantum spin model that exemplifies ideas of topological quantum computation.

Important Publications: **(1)** The resonating valence bond theory of high temperature superconductivity (1987) *Sol. St. Commun.* **63**, 973. **(2)** Gauge theory of high superconductors and strongly correlated electronic systems (1988) *Phys. Rev.* **37**, 580. **(3)** Why is Sr_2RuO_4 not a high T_c superconductor? Electron correlation, Hund's coupling and *p*-wave instability (1996) *Physica* **B223 & 224**, 490. **(4)** Gapless spin-1 neutral collective mode branch for graphite (2002) *Phys. Rev. Lett.* **89**, 016402. **(5)** Novel electric field effects on Landau levels in graphene (2007) *Phys. Rev. Lett.* **98**, 116802.

Memberships: Fellow: INSA 92; TWAS • Assoc. Member: ICTP, Trieste, Italy 87.

Awards & Distinctions: Kastler Prize 83 • S S Bhatnagar Prize 90 • Distinguished Alumni Award, IISc Centenary Year 2009.

Basu, Joyoti

Elected: 2006
Position: Prof., Bose Inst., Kolkata
Specialization: Molecular Microbiology; Mycobacteria; Host–Pathogen Interactions; Membrane Biology
Date and Place of Birth: 17 December 1957; Kolkata, West Bengal
Parents: Tarun Kumar Basu and Geeti
Address: Department of Chemistry, Bose Institute, 93/1, APC Road, Kolkata 700 009, India
Tel. (033) 2350 6619; 2350 1153 (O), (033) 2475 3293 (R), Mobile: 98300 44776
email: joyoti@vsnl.com, joyotibasu@gmail.com

Education: Calcutta Univ.: BSc 79, MSc 81, PhD 88.

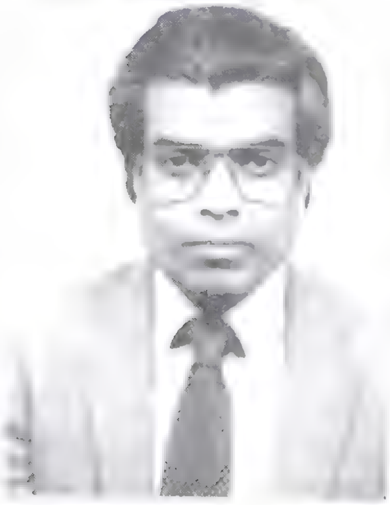
Career: Bose Inst.: Lecturer 91–94, Sr Lecturer 94–99, Reader 99–2005, Prof. 2005–.

Scientific Work: Elucidating novel mechanisms of mycobacteria-triggered apoptosis of host macrophages, showing how polymorphisms in mycobacterial surface proteins modulate apoptosis, and how mycobacteria dampen the host innate immune response by modulating toll-like receptor (TLR) signalling leading to release of cytokines. Lipoarabinomannan (LAM) from *M. tuberculosis* has been shown to attenuate interleukin 12 p40 production through induction of the negative regulator IRAK-M, whereas the secreted antigen ESAT–6 has been shown to bind to TLR2 to trigger inhibition of TLR signalling finally attenuating transcription factor activation required for cytokine release. This cumulative knowledge should provide leads for targetting signalling pathways that mycobacteria exploit for intracellular survival. Insight into peptidoglycan biosynthesis and cell division has been given by pinpointing regions of interaction between cell essential division proteins FtsZ, FtsW and FtsI; and elucidating a role of the kinase PknB in regulating cell division by phosphorylating a transpeptidase, providing leads for therapeutic intervention of tuberculosis.

Memberships: Fellow: NASI 2002; INSA 2009.

Awards & Distinctions: INSA Young Scientist Medal 89 • National Bioscience Award for Career Development DBT 2002.

Basu, Mukul Kumar



Elected: 1996
Position: CSIR Emeritus Sci., IICB, Kolkata
Specialization: Structure Functions of Bio-membranes; Design & Testing of Targeted Delivery Systems; Host–Parasite Interactions
Date and Place of Birth: 9 August 1939; Calcutta, West Bengal
Parents: Kishori M Basu and B Nihar
Spouse and Children: Shubhra; one *s*
Address: Biomembrane Division, Indian Institute of Chemical Biology, 4, Raja SC Mullick Road, Kolkata 700 032, India
Tel. (033) 2473 3491, (033) 2473 0492 (O), (033) 2475 0958 (R)
email: mukulkbasu@yahoo.com

Education: Calcutta Univ.: BSc 61; Kalyani Univ.: MSc 63; Jadavpur Univ.: PhD 69.

Career: Asutosh College: Lecturer 69–70; Northwestern Univ. Medical School, Chicago, USA: Postdoc Fellow 70–74; Albert Einstein College of Medicine, New York, USA: Res. Assoc. 74–78; College of Physicians & Surgeons, Columbia Univ., USA: Asst Prof. 78–84; Indian Inst. of Chem. Biology, Calcutta: Asst Dir 84–94, Dy Dir 94–98, Dir Grade Sci. 98–99, CSIR Emeritus Sci. 99–.

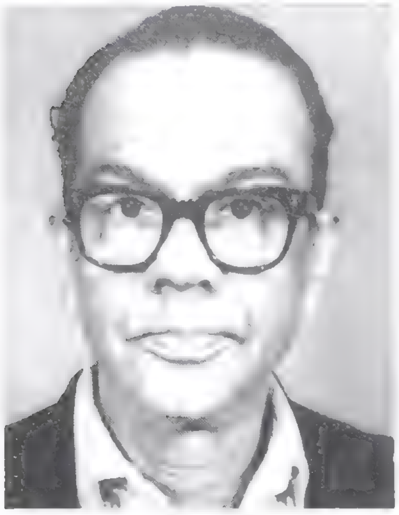
Scientific Work: Worked extensively on the microviscosity of red cell membranes in an attempt to understand the mechanisms of membrane function in different pathological conditions where alterations of membrane structure leading to disease state are very common. Most important contribution has been the utilization of membrane microviscosity concept to understand macrophage parasite interaction in relation to leishmaniasis. This powerful technique of controlled alteration of the microviscosity of cell membrane has not been utilized before to study the interaction of any parasite with macrophage system. Also made a significant contribution in the area of model membranes and liposomes. In an attempt to develop tissue targetted liposomal new drug delivery systems, has shown by utilizing various glycosides of both natural and synthetic origin, that receptor-recognizing glycoproteins or glycolipids anchored on to the surface of liposomes are able to expedite uptake of the liposomal moiety and its drug content by target cells. As a physical biochemist, efforts have always been focussed on the biophysical and biochemical aspects of membrane research with a view to elucidate a structure-function relationship of biomembranes as well as model membranes to understand the mechanism of membrane function in both health and disease.

Important Publications: More than 100 publications in International journals.

Memberships: Fellow: R. Soc. of Chem. 88; NASI 93.

Awards & Distinctions: Scientist of Merit, Science Assn of Bengal on National Science Day 95.

Basu, Sadhan*



Elected: 1974
Specialization: Quantum Chemistry; Photochemistry
Date and Place of Birth: 2 January 1922; Calcutta, West Bengal
Parent: Jyotish Chandra Basu
Spouse and Children: Rama; one *s*, one *d*
Last Address: Department of Chemistry, Calcutta University, Calcutta 700 007, India
***Deceased:** 5 October 1992

Education: Calcutta Univ.: BSc 42, MSc 44, DSc 48.

Career: Indian Lac Res. Inst., Ranchi: Physical Chemist 45–48; Indian Assn for the Cultivation of Sci., Calcutta: Res. Offr, 48–51; Indiana Univ., Bloomington: Sr Fulbright Fellow 51–53, Vis. Assoc. Prof. in Chem. 61–62; Univ. College of Sc. and Technol., Calcutta: Reader in Chem. 54–65; Uppsala Univ., Sweden, Quantum Chem. Group: Vis. Prof. 62–63; Calcutta Univ., Dept of Chem.: Palit Prof. 65–89.

Scientific Work: Widespread interests range from polymer chemistry, properties of polyelectrolytes and biopolymers in solution on the one hand to quantum chemistry, electronics spectroscopy and NQR on the other. Work with coworkers spanned the areas of charge transfer interactions, ligand field spectra, hydrogen bonding, quantum chemistry and photochemistry. Made a noteworthy contribution in chain transfer of free radical polymerization. Developed the method for determining the charge transfer frequency. Demonstrated for the first time the existence of the vibrational structure in charge transfer bands in solutions. Work on excimer and exciplex emission attracted wide attention. The diversity of research is reflected in the use of the Tomonaga gas model to calculate the transition energies and oscillator strengths of aromatic polyhydrocarbons, in the use of the graph theory to show that only three- four- and six-membered rings could give extended catacondensed planar structures and in the Hartree–Fock–Bogolyubov formulation to show that the longest wavelength singlet transitions in linear polyenes converge to a limit while the corresponding triplet transitions do not.

Memberships: Fellow: Indian Chemical Soc. 48; R. Soc. of Chem., London 57; Societie de Chemie Physique, France 60; INSA 62.

Awards & Distinctions: S S Bhatnagar Prize 65 • UGC National Lecturer 72–73 • C V Raman Birth Centenary Commemoration Medal 88.

Basu, Sandip Kumar

Elected: 1992
Position: Prof. of Eminence, NII, New Delhi
Specialization: Biochemistry; Molecular Biology Microbial Genetics; Cell Biology
Date and Place of Birth: 1 January 1944; Basirhat, West Bengal
Parents: Purendra Nath Basu and Bela
Spouse and Children: Indrani; one *s* (Saionton)
Address: National Institute of Immunology, Aruna Asaf Ali Marg, Delhi 110 067, India
Tel. (011) 2674 1703 (O), (011) 2671 7107 (R), Mobile: 98914 98821
email: sandip@nii.res.in; sandipkbasu@gmail.com

Education: Univ. of Calcutta: BSc Hons 62, MSc 64, PhD 68.

Career: Univ. of Southern California, USA: Postdoc Fellow 68–69; Univ. of California, Irvine: Asst Res. Microbiologist 69–70; Public Health Res. Inst., New York: Asst Geneticist 70–73; Univ. of Chicago, Michael Reese Medical Centre, USA: Faculty Assoc. 73–75; Univ. of Texas Health Sc. Centre, USA: Instructor 75–77, Asst Prof. 77–83; IICB, Calcutta: Sci. 83–85; Inst. of Microbial Technol., Chandigarh: Sci. 85–86, Dir 86–92; National Inst. of Immunology, New Delhi: Dir 91–2005; Prof. of Eminence 2006–.

Scientific Work: Established the molecular basis and new therapeutic approaches for atherosclerosis by demonstrating how human cells use specific cell surface receptors to obtain cholesterol from low density lipoprotein (LDL); how aberrations in receptor-mediated metabolism of LDL cause atherosclerosis: and how mammalian cells transport macromolecules through receptor-mediated endocytosis. Introduced a novel receptor-mediated concept for targetting of drugs to macrophages using macromolecular drug conjugates recognized by macrophage-specific receptors. The superior efficacy of this approach over conventional mode has been demonstrated in model systems of leishmaniasis, tuberculosis and histiocytic malignancy. Besides its potential in therapy of macrophage-associated diseases in general, this work also provides a new tool for eliciting predictable metabolic responses from macrophages crucial for the rational design of vaccines/immunotherapeutics.

Important Publications: **(1)** IL-6 and IL-12 specifically regulate the expression of Rab5 and Rab7 via distinct signaling pathways(2006) *EMBO J* **25,** 2878. **(2)** Modulation of immunogenicity and antigenicity of proteins by maleylation to target scavenger receptors on macrophages (1995) *J. Immunol.* **154,** 1. **(3)** Receptor mediated drug delivery to macrophages in chemotherapy of leishmaniasis (1989) *Science* **244,** 705. **(4)** Binding site on macrophages that mediates uptake and degradation of acetylated low density lipoprotein, producing massive cholesterol deposition (1979) *Proc. Natl. Acad. Sci. USA* **76,** 333. **(5)** Release of LDL from its cell surface receptor by sulfated glycosaminoglycans (1976) *Cell* **7,** 85.

Memberships: Fellow: NASI 90; INSA 94; TWAS 94.

Awards & Distinctions: Ranbaxy Award in Medical Sciences 1995 • MRN Prasad Memorial Lecture INSA 95 • FICCI Award in Life Sciences 97 • R K Dutt Memorial Award ISCA 2000 • Padma Shri 2001 • Y P Subba Row Birth Centenary Lecture INSA 2002 • B R Ambedkar Centenary Award ICMR 2003 • P C Mahalanobis Memorial Lecture 2005 • B K Bachhawat Memorial Award NASI 2006 • Scientific Advisory Committee to the Cabinet 2000–08.

Batra, Janendra Kumar

Elected: 2005
Position: Staff Sci., NII, New Delhi
Specialization: Molecular Biology; Biochemistry and Protein Chemistry
Date and Place of Birth: 28 January 1957; Jaunpur, Uttar Pradesh
Parents: Jagadish Chandra Batra and Padam
Spouse and Children: Poonam; two *s*
Address: National Institute of Immunology, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2670 3739 (O), (011) 2670 3546 (R), Mobile: 98714 99411
email: janendra@nii.res.in; URL: http://202.54.226.233/jsp/faculty/scientist_Janendra.html

Education: Allahabad Univ.: BSc 75, MSc 77; Univ. of Delhi: PhD 83.

Career: V P Chest Inst., Delhi: Jr/Sr Res. Fellow 78–83; Manitoba Inst. of Cell Biology, Canada: Res. Assoc. 87–88; National Cancer Inst., USA: Vis. Fellow 83–86, Vis. Assoc. 88–91, Vis. Sci. 2000–01; National Inst. of Immunology: Staff Sci. 91–.

Scientific Work: Studies focussed on the molecular biology and functions of the eosinophil's granule-associated ribonucleases to elucidate key structure-function relationships for their potent inflammatory actions in allergic responses, host–parasite interactions and tissue damage. Investigating the transcriptional and translational regulation of eosinophil ribonucleases in particular their modulation by cytokines. Involved in understanding the mechanism of RNA recognition and cleavage by ribonucleases and ribosome interacting proteins. Used fungal ribonucleolytic toxin, restrictocin; ribosome inactivating protein, saporin; and human pancreatic ribonuclease as models to understand the mechanism of RNA–protein interaction and cytotoxicity in these proteins of diverse specificities. Studies involve extensive mutational analysis and molecular modelling. Solved the mechanisms of catalysis and cytotoxicity of restrictocin and saporin. Showed that the interaction between human pancreatic ribonuclease and ribonuclease inhibitor can be disrupted by site-specific mutations resulting in variants that are toxic towards tumour cells. Another major goal is to utilize the cytotoxic variants of human ribonucleases in the construction of recombinant chimeric toxins and immunotoxins for targetted therapy.

Important Publications: **(1)** A single amino acid substitution in ribonucleolytic toxin restrictocin abolishes its specific substrate recognition activity (1997) *Biochem.* **36**, 13693–13699. **(2)** Inclusion of a furin-sensitive spacer enhances the cytotoxicity of ribotoxin restrictocin containing recombinant single chain immunotoxins (2000) *Biochem. J.* **345**, 247–254. **(3)** Interaction of human pancreatic ribonuclease with human ribonuclease inhibitor: Generation of inhibitor-resistant cytotoxic variants (2001) *J. Biol. Chem.* **276**, 24978–24984. **(4)** The cytotoxic activity of ribosome-inactivating protein saporin-6 is attributed to its rRNA *N*-glycosidase and internucleosomal DNA fragmentation activities (2003) *J. Biol. Chem.* **278**, 4813–4820. **(5)** Ribosome inactivating protein saporin induces apoptosis through mitochondrial cascade, independent of translation inhibition (2008) *Int. J. Biochem. Cell Biol.* **40**, 2880–2888.

Memberships: Fellow: NASI 97.

Awards & Distinctions: Visiting Fellowship of Fogarty International Center, USA 83–86 • Sreenivasayya Memorial Award Soc. of Biological Chemists, India 2002.

Beig, Gufran-Ullah

Elected: 2009
Position: Sci., Dy Dir, IITM, Pune
Specialization: Atmospheric Sciences; Global Change and the Atmospheric Environment; Urban Air Pollution and Chemical-Climate Change; the 2-D and 3-D Atmospheric Chemical Transport Modelling
Date and Place of Birth: 24 May 1961; Jhalawar, Rajasthan
Parents: Mohd Masihulla Beig and Hasina Begum
Spouse and Children: Anjum Jahan Beig; one *s*, one *d* (Nauman, Atifa)
Address: Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, Pashan, Pune 411 008, India
Tel. (020) 2590 4261 (O), (020) 2295 3145 (R)
email: beig@tropmet.res.in; URL: http://envis.tropmet.res.in/beig/index.htm

Education: Rajasthan Univ: BSc 80; M L Sukhadia Univ., Udaipur: MSc 83, Physical Research Laboratory, Ahmedabad: PhD 90.

Career: PRL Ahmedabad: Postdoc Res. Fellow 90–91; NCAR, USA: Postdoc Vis. Sci. 91–92; Res. Assoc. 92–94; M L Sukhadia Univ., Udaipur: Asst Prof. 94–96; National Physical Laboratory, New Delhi: Sci. 96; IITM, Pune: Sr Sci. Offr 96–2001, Sci. 2001–09.

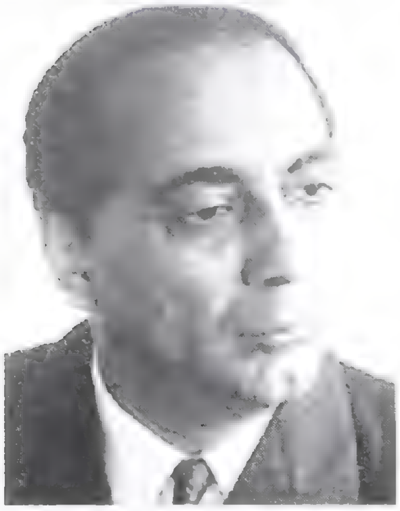
Scientific Work: Science related to 3-D atmospheric chemistry–climate modelling to reliably quantify the role of atmospheric chemistry on regional climate change of the atmosphere. Development of air pollution forecasting modeling system establishing of network of air pollution monitoring to study the air quality in India. Identification of important anthropogenic climate change signal in the middle and upper atmosphere in response to human-induced greenhouse gas increase. In this context, gridded emission inventory of several pollutants for India along with their decadal growth has been constructed and the resultant radiative forcing estimated. Careful separation of natural variability from climate change signal unravelled a significant anthropogenic cooling trend in the middle and upper atmosphere resulting in shrinking of the ionosphere with significant potential influence on radio propagation and navigation systems. Reported for the first time, the adverse impact of certain proposed geo-engineering solution of global warming on ion composition.

Important Publications: **(1)** Impact of geo-engineering on the ion composition of the stratosphere (2008) *Geophys. Res. Lett.* (*USA*) **35**, L10812. **(2)** Overview of the temperature response in the mesosphere and lower thermosphere to solar activity (2008) *Rev. Geophys.* (*USA*) **46**, RG3002. **(3)** Pattern of global change in the upper atmosphere (2006), *Science* (*USA*) **314**, 5803, 1253–1254. **(4)** Influence of anthropogenic emissions on tropospheric ozone and its precursors over the Indian tropical region during a monsoon (2006) *Geophys. Res. Lett.* (*USA*) **33**, L07808. **(5)** Review of mesospheric temperature trends (2003) *Rev. Geophys.* (*USA*) **41**, 4.

Memberships: India Meteorological Soc.; AGU; COSPAR .

Awards & Distinctions: Certificate of Merit Award 2008, MoES, Govt of India • Maharana Udai Singh National Award 2007 • Maharana Mewar Foundation, Rajasthan • S S Bhatnagar Award 2006 • WMO's Norbert Gerbier-MUMM International Award 2005, World Meteorological Organization (United Nations), Geneva • Young Scientist Award 99–2000 MAAS Assn for Advancement in Science, Aligarh, India • Clean up the World Award 94 • United Nations Environment Program, USA.

Bhabha, Homi Jehangir*



Elected: 1941
Specialization: Theoretical High Energy Physics; Cosmic Rays
Date and Place of Birth: 30 October 1909; Bombay, Maharashtra
Parents: H Jehangir Bhabha and Meherbai
Last Address: Mehrangir, 12 Little Gibbs Road, Malabar Hill, Bombay 400 006, India
***Deceased:** 24 January 1966

Education: Caius College, Cambridge: Mathematics Tripos, Tripos in Mech. Sci. 30; Cavendish Laboratory, Cambridge PhD 35.

Career: Univ. of Cambridge: Sr Student 35–39; IISc, Bangalore, Dept of Physics: Special Reader 40–42, Prof. 42–47; TIFR, Bombay: Dir 45–66; Dept of Atomic Energy, Govt of India: Secretary 48–66.

Scientific Work: Took a prominent part in the early history of the development of quantum electrodynamics. Calculated the cross-section of electron positron scattering (Bhabha scattering); put forward theory of cosmic ray showers by cascade production of gamma rays and positive and negative electron pairs. The vector meson theory pointed out that the measured lifetime of a meson in flight is affected by the time dilatation predicted by Einstein's special theory of relativity. Was the brain behind the growth of atomic energy programme and establishments in India.

Important Publications: **(1)** Passage of very fast protons through matter (1934) *Nature* **134**, 934. **(2)** The annihilation of fast protons by electrons in the K-shell (1934) *Proc. R. Soc. London* **146**, 859, 723–736.

Memberships: Fellow: R. Soc., London 41; R. Soc. of Edinburgh 57; American Acad. of Arts and Sci. 59 • Chmn: Sci. Advisory Committee to Cabinet; Atomic Energy Commission • President: IUPAP; IAEA Sci. Advisory Committee.

Awards & Distinctions: Hopkins Prize, Cambridge Philos. Soc. 48 • Melchett Award, Fuel Institute of London • Hon. Doctorates: Patna 44, Lucknow 49, Banaras 50, Agra 52, Perth 54, Allahabad 58, Cambridge 59, London 60, Padova 61 • Padma Bhushan 54.

Bhaduri, Amar Nath*

Elected: 1989
Specialization: Biochemistry; Molecular Enzymology; Parasite Biochemistry
Date and Place of Birth: 12 November 1935; Calcutta
Parents: Adinath and Smrity
Spouse and Children: Reena; one *s*, one *d*
Last Address: Indian Institute of Chemical Biology, 4, Raja S C Mullick Road, Jadavpur, Calcutta 700 032, India
***Deceased:** 5 June 2003

Education: Calcutta Univ.: BSc Hons 55, MSc 58; Univ. of Michigan, USA: DSc 63.

Career: Jadavpur Univ., Dept of Pharmacy: Lecturer 66–71, Reader 71–76, Prof. 76–85; Roche Inst. of Molecular Biology, USA: Vis. Sci. 75–76; IICB, Calcutta: Dir Grade Sci. 86–95, CSIR Emeritus Sci. and INSA Hon. Sci. 95–2003.

Scientific Work: Made a significant contribution in molecular enzymology with a new class of oxido-reductases taking UDP-galactose 4-epimerase as the prototype enzyme. Work revealed the chemical architecture of the active site in molecular details. Demonstrated new phenomena such as asymmetry in allostericity and substrate-induced catalytic suicide inhibition that is of wider biological interest. Work on biochemical analysis of host–parasite interaction with human protozoal pathogen *Leishamania donovani* as the model has demonstrated a major biomodulatory role for Ca^{2+} in the parasite's life-cycle.

Memberships: Fellow: INSA 86 • President: Biochem./Biophys. Section of Indian Sc. Congress 90 • Member: WHO Expert Advisory Panel on Leishmaniasis 93–97.

Awards & Distinctions: S S Bhatnagar Prize 79.

Bhaduri, Sumit

Elected: 1989
Position: Sci. Adviser, Reliance Ind. Ltd, Mumbai
Specialization: Inorganic Chemistry; Organometallic Chemistry; Catalysis
Date and Place of Birth: 22 October 1948; Calcutta
Parents: Amar Nath Bhaduri and Smrity
Spouse and Children: L Vrinda Nabar; one *d*
Address: Reliance Industries Limited, Swastik Mills, V N Purav Marg, Chembur, Mumbai 400 071, India
Tel. (022) 6767 7324, (022) 6767 7376 (O), (022) 2415 0255 (R)
email: sumit_bhaduri@ril.com

Education: Univ. of Calcutta: BSc 68; Univ. of Cambridge: BA/MA 71, PhD 74.

Career: Univ. of Milan & Univ. of Cambridge: Postdoc Fellow 75–76, 76–77; Alchemie Res. Centre, Bombay: Sci. 77–85, Sr Sci. 85–89, Res. Assoc. 93; Northwestern Univ., USA: Vis. Prof. 92–93; The Associated Cement Co, Mumbai Manager R & D 96–2001; Reliance Industries, Mumbai: Head of Research 2001–04, Sr Sci. Adviser 2005–

Scientific Work: Carried out structural and kinetic studies on homogeneous and supported catalytic systems based on carbonyl clusters. Major contributions are: the involvement of polynuclear rather than mononuclear catalytic intermediates in cluster catalysed reactions such as carbonylation of nitro-benzene, hydrogen-transfer reactions and reactions involving the activation of water have been established through detailed structural and kinetic studies; a variety of anionic clusters has been shown to be easily immobilised on an anion exchange resin; stability of co-ordinatively unsaturated mononuclear metal centres has been shown to be critically dependent on the nature of the polymer functionality; isolation and characterization of copper peroxo complex as model for haemocyanin have been achieved.

Memberships: Fellow: INSA 93.

Awards & Distinctions: P B Gupta Medal, Indian Assn for the Cultivation of Science • S S Bhatnagar Prize 92.

Bhagavantam, Suri*

Elected: 1934
Specialization: Solid State Physics; Crystal Physics; Scattering Light
Date and Place of Birth: 14 October 1909; Gudivada, Andhra Pradesh
Parents: Suri Markandeya Saima and Durgamba
Spouse and Children: Sita Mahalakshmi; four *s*, one *d*
Last Address: Department of Physics, IIT Madras, Madras 600 036, India
***Deceased:** 6 February 1989

Education: Univ. of Madras: BSc Hons 28, MSc; Osmania Univ., Hyderabad: DSc.

Career: Indian Assoc. for the Cultivation of Sci., Calcutta: 28–32; Andhra Univ. Waltair: Prof. 32–48; Sci. Liaison Offr of India in UK 48–49; Osmania Univ. Hyderabad: Dir of the Physics Res. Lab. 49–52, Vice-Chancellor 52–57; IISc, Bangalore: Dir 57–62; Sci. Adviser to the Defence Ministry, New Delhi: 62–68; BEL, Bangalore: Chmn.

Scientific Work: Commenced research with investigations on optical and magnetic anisotropy in aromatic and aliphatic series of compounds. Studied the Raman spectra of gases, concentrating on the interaction between rotation and vibration, effect of pressure and polarization and intensity distribution in the wings accompanying the Rayleigh scattering as well as vibrational scattering. Developed new techniques for the measurement of elastic constants. Studied magnetic symmetry and physical properties of crystals. Closely associated with the planning of electronics and aeronautics development in India.

Important Publications: **(1)** *Scattering of light and Raman effect.* **(2)** *Theory of groups and its applications to physical problems.* **(3)** *Crystal symmetry and physical properties.*

Memberships: Fellow: INSA 35 • Chmn: Indian National Committee of IUPAP and IUGG; Indian Natl Cte for Pure & Appl. Phys. • President: COSTED; Indian Sci. Congress: 73 • Vice President: IUPAP.

Awards & Distinctions: Hon. Doctorates by Universities: Andhra, Osmania, Sri Venkateswara • S S Bhatnagar Award 70. • Pres. ISCA 73 • Vice-Pres: IUPAP • Chmn: Indian Natl ctr for Appl. Phys • President: COSTED.

Bhagwat, Wasudeo Vithal*

Elected: 1945
Specialization: Physical Chemistry
Date and Place of Birth: 6 October 1906; Hatod, Madhya Pradesh
Parent: Vithal Waman Bhagwat
Spouse and Children: Shakuntala; four *s*
Last Address: F2/17, University Campus, Vikram University, Kothi Road, Ujjain 456 010, Madhya Pradesh, India
***Deceased:** 28 January 2000

Education: Allahabad Univ.: BSc 27, MSc 29, DSc 36.

Career: Allahabad Univ.: Reader 30–32; St John's College, Agra: Lecturer 32–33; Holkar College, Indore: Lecturer in Physical Chem. 33–43, Prof. 43–54, Principal 54–64; Vikram Univ.: Prof. of Chem. 64–71, UGC Retd Sci. 74–82.

Scientific Work: Published over 150 research papers in photochemistry, kinetics, parachor of several organic compounds and their structure, rheochor and a host of other topics.

Bhakuni, Dewan Singh

Elected: 1983
Specialization: Natural Products; Bio-organics; Biosynthesis; Nucleoside Medicinal Chemistry
Date and Place of Birth: 30 December 1930; Almora, Uttarakhand
Parents: R S Bhakuni and Govindi
Spouse and Children: Mithlesh; two *s* (Sudhir, Vinod)
Address: C-132, Nirala Nagar, Lucknow 226 020, India
Tel. (0522) 278 8517 (R)
email: bhakuniv@rediffmail.com

Education: Allahabad Univ.: BSc 52, MSc 54, DPhil 57; London Univ.: PhD 65, DSc 78.

Career: CDRI, Lucknow: Sr Sci. Asst: 58–59; Sci. 66–88; Sci. (Dir Grade) 88–90; National Botanic Gardens, Lucknow: Jr Sci. Offr 60–62; Imperial College of Sc. and Technol.: Res. Fellow 62–65; Inst. de Chemie des Substances Naturelles, France: Vis. Sci. 80; Steven's Inst. of Technol., USA: Vis. Sci. 88.

Scientific Work: Determined the structure, stereochemistry and absolute configuration of bioactive alkaloids and marine natural products. Traced the biogenetic pathways of several types of alkaloids, and demonstrated the stereospecificity of enzyme reactions. Studied aberrant biosynthesis of alkaloids in plants. Synthesized unusual alkaloids, terpenoids and marine nucleosides. Designed and synthesized nucleosides which have shown high order of antiviral, antileishmanial, antiallergic and immunomodular activities.

Important Publications: **(1)** Alkaloids of *Cocculus laurifolium* (1980) *Tetrahedron* **36,** 3107. **(2)** The biosynthesis of roemerine, anonaine and mecambrine (1966) *Chem. Commun.* 176. **(3)** Absolute configuration and biosynthesis of tiliacorine and tiliacorinine (1981) *J. Chem. Soc. Perkin-1,* 2598. **(4)** Synthesis of tylophorine (1980) *Tetrahedron,* **36,** 2489. **(5)** The structure, absolute configuration and biosynthesis of nortiliacorinine-A, (1981) *Tetrahedron,* **37,** 2651. **(6)** *Bioactive marine natural products,* Springer, New York, USA with Anamaya Publishers, New Delhi, India.

Memberships: Fellow: NASI 77; INSA 79 • Member: London Chemical Soc.; Chile Chemical Soc.

Awards & Distinctions: S S Bhatnagar Prize 75 • Ranbaxy Res. Award 88 • C V Raman Award 89.

Bhakuni, Vinod

Elected: 2004
Position: Head, Dn of Molecular & Structural Biology, CDRI, Lucknow
Specialization: Protein Folding; Molecular Biophysics
Date and Place of Birth: 24 May 1962; Pithoragarh, Uttaranchal
Parents: D S Bhakuni and Mithlesh
Spouse and Children: Neelam; one *s*, one *d*
Address: Division of Molecular & Structural Biology, Central Drug Research Institute, P.B. No. 173,
Lucknow 226 001, India
Tel. (0522) 221 2411–18/4325 (O), (0522) 272 0623 (R), Mobile: 98391 36058
email: bhakuniv@rediffmail.com

Education: Lucknow Univ.: BSc Hons 83, MSc 84, PhD 80.

Career: CDRI, Lucknow: Sci. 87–.

Scientific Work: The work highlights the importance of electrostratic interactions in maintainence of native information and subunit assembly of multimeric proteins. The work on seven multimeric proteins has demonstrated that even slight alteration in electrostratic interactions leads to dissociation of the native assembly of these proteins resulting in stabilization of lower enzymatically active oligomers. These studies throw light on the possible mechanism of existence of heterogeneous forms of enzyme in spite of being synthesized as a single gene and build up of one type of subunit. Besides this, the work on energetics associated with unfolding of nanomeric proteins has provided significant insight on the correlation between the various interactions that play a major role in stabilization of intermediates during folding/unfolding of proteins.

Memberships: Fellow: NASI 2000; INSA 2008.

Awards & Distinctions: CSIR Young Scientist Award in Biological Sciences 96 • DBT National Biosciences Award 2001.

Bhalerao, G D*

Elected: 1937
Specialization: Helminthology
Date and Place of Birth: 10 December 1897; Wardha, Maharashtra
Parents: D Bhalerao
Spouse and Children: Shrimati; two *s*, one *d*
Last Address: Indian Veterinary Research Institute, Izatnagar, Bareilly, Uttar Pradesh 243 001, India
***Deceased:** 6 December 1948

Education: Hislop College, Nagpur: BSc 20; Muir Central College, Allahabad: MSc; School of Hygiene and Tropical Medicine, Univ. of London: PhD; Univ. of Allahabad: DSc.

Career: Hislop College, Nagpur, Dept of Biology: Lecturer; Univ. College, Rangoon, Burma and College of Sci., Nagpur: Lecturer; Indian Veterinary Res. Inst., Mukteswer, Kumaun Hills: Helminthologist, Offr-in-Charge of Veterinary Zoology and Officiating Dir 30–48.

Scientific Work: Published several research papers describing many new forms of helminth parasites and gave revised diagnosis of many forms already known. Entrusted with the arduous task of compiling the fauna on Trematoda which was not completed. Amassed a rich collection of material and literature, made voluminous index cards with many figures and descriptions of the various genera and species of already known and new forms. Had a thorough knowledge of systematic helminthology and was particularly interested in veterinary helminthology diagnosis, life histories, systematics, nomenclatures, etc. In one contribution, reported the occurrence of *Schistosoma japonicum* from pigs in India.

Memberships: President: Zoology Section of Indian Sc. Congress.

Bhalla, Upinder Singh

Elected: 2008
Position: Prof., NCBS, Bangalore
Specialization: Systems Biology; Computational Neuroscience; Systems Neurobiology
Date and Place of Birth: 21 June 1963; London, UK
Parents: Gurdarshan S Bhalla and Sheila M E
Spouse and Children: Gayatri Saberwal; one *s*, one *d*
Adddress: National Centre for Biological Sciences, GKVK Campus, Bellary Road, Bangalore 560 065, India
Tel. (080) 2366 6130 (O), (080) 2362 4030 (R)
email: bhalla@ncbs.res.in

Education: Univ. of Cambridge, UK: BA 86; California Inst. of Tech., Pasadena: PhD 93.

Career: Mount Sinai School of Medicine: Postdoc Fellow 93–95; National Centre for Biological Sciences: Reader 96–2003; Assoc. Prof. 2003–07, Prof. 2007–.

Scientific Work: Interested in analysing signal flow in the brain, from molecules to entire neural systems. At the molecular level studies biochemical mechanisms for information processing, especially molecular switches that may function at synapses in the brain to store memory; using computational simulations of biochemical reaction-diffusion kinetics down to the single-molecule level, as well as using experimental methods to measure the time-course of molecular changes following memory-inducing stimulation. At the cellular level studies interactions between molecular and electrical information flow, again using experiments and models. At network level deploys new optical microscopy and activity monitoring methods along with computer models to analyse network function. Finally, at the systems level uses electrical recordings of brain activity as well as behavioural responses to analyse information processing in the olfactory system, with special interest in odorant representations and processing of space.

Memberships: Fellow: Intl Soc. for Systems Biology; Soc. for Neuroscience; Indian Neuroscience Assn.

Awards & Distinctions: S S Bhatnagar Award 2007 • Dept of Atomic Energy Science Research Council – Outstanding Research Investigator Award 2005 • Millennium Medal, Indian Science Congress 2000 • Wellcome Trust Sr Res. Fellowship 99.

Bhan, Maharaj Kishan

Elected: 1991
Position: Secretary, DBT, New Delhi
Specialization: Paediatrics; Gastroenterology; Infectious Diseases; Nutrition
Date and Place of Birth: 9 November 1947; Srinagar, Kashmir
Parents: S N Bhan and Gauri
Spouse and Children: Girija; one *s*, one *d*
Address: Department of Biotechnology, Block-2, CGO Complex, Lodi Road, New Delhi 110 003, India
Tel. (011) 2436 2950, (011) 2436 2881 (O), (011) 2696 4173 (R), Mobile: 98990 94922
email: mkbhan@dbt.nic.in, mk_bhan2003@yahoo.co.in

Education: Armed Forces Medical College, Pune: MBBS 71; Delhi Univ.: MD 74; Karolinska Inst., Sweden: Postdoc Res. 77.

Career: Safdarjung Hospital, New Delhi: Registrar 74–76; Inst. of Child Health, Kabul: Sr Consultant and Asst Prof. 76–78; Postgraduate Inst. of Education and Res., Chandigarh: Lecturer 78–89; AIIMS, New Delhi, Dept of Paediatrics: Asst Prof. 79–81, Assoc. Prof. 81–87, Additional Prof. 87, Sr Prof. DBT, New Delhi: Secretary 2004.

Scientific Work: Established persistent diarrhoeal disease as a major cause of death in the developing world. Was the first to identify enteroaggregative *Escherichia coli* as the major causative organism. Established animal model of enteroaggregative *Escherichia coli* infection and disease. Developed an indigenous monosaccharide-based dietary formulation for infants with persistent mucosal injury which has been adopted in many countries. Identified a novel human–animal reassortant naturally attenuated rotavirus strain; demonstrated its immunogenicity and protective efficacy against post-neonatal rotavirus infections. Developed zinc as a new anti diarrhoeal agent and low osmolarity ORS with other scientists.

Important Publications: About 190 publications.

Memberships: Member: Indian Acad. of Paediatrics; Indian Assn of Physicians of India; Indian Soc. Gastroenterology; European Soc. Gastroenterology; Asian Study Group for Diarrhoeal Disease.

Awards & Distinctions: S T Achar Gold Medal 84 • S S Mishra Award 86 • Ranbaxy Res. Award 90 • S S Bhatnagar Award 92 • Pollins Foundations Res. Award 2003.

Bhandari, Narendra

Elected: 1990
Position: Hon. Sci., INSA, New Delhi
Specialization: Planetary Sciences; Nuclear Geophysics; Exploration of Moon
Date and Place of Birth: 10 October 1941; Jodhpur, Rajasthan
Parents: Gautamchand Bhandari and Rajul
Spouse and Children: Indira; one *s*, two *d*
Address: 2, Nilima Flats, Nilima Park Society, Vijay Crossing, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4266 (O), (079) 2791 2332 (R), Mobile: 98240 77890
email: nnbhandari@yahoo.com; URL: http://www.nbhandari.com

Education: Univ. of Rajasthan: BSc 58, MSc 60; Univ. of Bombay: PhD 67.

Career: MBM Engg College: Lecturer 60–61; TIFR, Bombay: Res. Assoc. 61–65, Fellow 68–73; Univ. of California, Santiago, USA: Postdoc. Res. Chemist 65–66, Asst Res. Chemist 66–68; PRL, Ahmedabad: Assoc. Prof. 74–84, Prof. 84–92, Sr Prof. 91–2004.

Scientific Work: Defined the objectives of the Indian moon mission, *Chandrayaan–1*. Detected several cosmic ray produced radioisotopes in earth's atmosphere and utilized them to understand terrestrial mixing processes. Determined radiation history of meteorites and moon rocks. Geochemically identified the end-cretaceous mass extinction horizons in marine sedimentary sequence in Meghalaya and intertrappean sequence in Anjar in Kutch. Worked on areas related to cosmic ray effects in earth, meteorites and moon, interplanetary dust-charged particle tracks in minerals, radiation counting techniques, formation history of solar system and applications of radioactive tracers in terrestrial reservoirs, specially the atmosphere and hydrosphere. The techniques provided ages of glaciers in Himalayas and their rates of movement.

Important Publications: **(1)** Behaviour of the heliosphere over prolonged solar quiet periods by ^{44}Ti measurements in meteorites (1995) *Science* **270**, 1648–1650. **(2)** ^{26}Al in eucrite Piplia Kalan: Plausible heat source and formation chronology of eucritic parent bodies (1999) *Science* **284**, 1348–1350. **(3)** Fossil tracks in meteorite, Angra Dos. Reis: A predominantly fission origin (1972) *Nature* **234**, 540–543. **(4)** Secular variations in heavy nuclei abundance in cosmic rays (1974) *Science* **185**, 1043. **(5)** Impact did not trigger Deccan volcanism: Evidence from Anjar K/T boundary intertrappean sediments (1994) *Geophys. Res. Lett.* **22**, 4, 433–436.

Memberships: Member: Intl Astronomical Union • President: Intl Lunar Exploration Working Group 2004–06.

Awards & Distinctions: Vikram Sarabhai Award 76 • National Mineral Award 90, Certificate of Special Recognition by NASA, USA for work on lunar samples.

Bhanu Sankara Rao, Kota

Elected: 2004
Position: Prof and Dean, Sc. Engg Sci and Technol., Hyderabad
Specialization: Mechanical Metallurgy; Physical Metallurgy; Materials Development
Date and Place of Birth: 15 June 1947; Guntur, Andhra Pradesh
Parents: K S Brahmananda Rao and K Leelavathi
Spouse: K Sujata
Address: School of Engineering Science and Technology, University of Hyderabad, Central University (P.O.)
Hyderabad 500 046, India
Tel. (040) 2313 4450 (O), (040) 2313 4451 (R)
email: kbsrse@uohyd.ernet.in

Education: Nagpur Univ.: BE 73; IIT Bombay: MTech 75; Univ. of Madras: PhD 89.

Career: Regional Engg College, Warangal: Lecturer 75–77; Nagarjuna Steels, Hyderabad: Management Engineer 77; IGCAR, Kalpakkam: Sci. Offr 77–; Assoc. Dir. 2007–2009; Kernforschungszentrum, Germany: Guest Sci. 84–86; NASA-Lewis Res. Centre, USA: National Res. Fellow of USA 93–95; Hyderabad Central Univ: Prof. 2009–; School of Engg Sci. Technol: Dean 2009–.

Scientific Work: Specialist in the area of materials development, mechanical metallurgy and structure-property correlations. Original contributions have expanded our current knowledge of creep, fatigue and creep-fatigue interaction of austenitic and ferritic steels, nickel and cobalt base superalloys, structural intermetallics and continuous fibre reinforced Ti-based composite materials. Proposed failure criterion in LCF tests, established manifestations and micromechanisms of cyclic deformation, damage and fracture under dynamic strain ageing conditions, discovered uniform matrix cavitation damage in high temperature fatigue, developed high fatigue resistant intermetallics, and established procedures to characterize the deformation and damage in the continuous fibre-reinforced metal matrix composite materials. Identified synergistic interactions between creep, dynamic strain ageing, oxidation, deformation ratcheting, slip character, mean stress and various phase instabilities and their dependence on microstructure and testing variables in causing deterioration in fatigue life of several high temperature materials used in nuclear and aerospace applications. Also identified the operative strengthening mechanisms in several superalloys.Developed oxide dispersion strengthened ferritic-martensitic steels and reduced activation ferritic-martensitic steels for fast breeder reactor and fusion reactor applications.

Memberships: Fellow: Am. Soc. for Materials 98; NAE 2001.

Awards & Distinctions: Binani Gold Medal, Indian Inst. of Metals 90 • NASA Appreciation Award 94 • Best Metalurgist Ministry of Steel India 95 • MRSI Medal 97 • SAIL Gold Medal, Indian Inst. of Metals 2000, 2004 • Indian Inst. of Metals • G D Birla Gold Medal 2004.

Bharadwaj, Parimal Kanti

Elected: 1998
Position: Prof., IIT Kanpur
Specialization: Supramolecular Chemistry; Inorganic Chemistry; X-ray Crystallography
Date and Place of Birth: 6 September 1951; Purulia, West Bengal
Parents: C H Bharadwaj and P R Bharadwaj
Spouse and Children: D Bharadwaj; one *d*
Address: Department of Chemistry, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7340, (0512) 259 7034 (O), (0512) 259 8324 (R)
email: pkb@iitk.ac.in

Education: Burdwan Univ.: BSc 71; IIT Kharagpur: MSc 74; PhD 78.

Career: Rutgers Univ., NJ, USA: Asst Prof. 85; IIT Kanpur: Asst Prof. 87–93, Assoc. Prof. 93–95, Prof. 95.

Scientific Work: Research activities included are in the areas of supramolecular chemistry and inorganic chemistry. A new synthetic method for a new class of macrobicyclic cryptands has been developed. These cryptands have been found to be very useful as potential molecular photonic devices and biosensors. They have also been derivatized to have a new generation of amphiphiles that form vesicles spontaneously and also form stable LB-films. In inorganic chemistry, a new method of synthesis of metal-thiolates has been used to mimic intrinsic active sites of the metalloproteins.

Memberships: INSA 2009.

Awards & Distinctions: UNESCO Fellowship in Chemistry, Tokyo Institute of Technology Japan 79–80 • Ajit Memorial Award 96 • Medal of Appreciation, IACS • Korean Chemical Soc. 2001 • CRSI Bronze Medal 2002.

Bharadwaja, Yajnavalkya*

Elected: 1935
Specialization: Plant Morphology
Date and Place of Birth: 13 August 1895; Jalalpur, Punjab
Children: Two *s*, three *d*
Last Address: Department of Botany, Balwant Rajput College, P.O. Bichpuri, Agra
***Deceased:** 25 March 1963

Education: Govt College, Lahore: BSc 16 and MSc 18; Univ. of London: PhD 33.

Career: Govt College, Lahore: Demonstrator in Botany 18–19; St. John's College, Agra, Dept of Botany: Prof. 19–22; BHU, Varanasi, Dept of Botany: Asst Prof. 22–33, Prof. and Head 33–55; Jaswant College, Jodhpur: Principal 48–50; B R College, Agra: Res. Prof. 55–63.

Scientific Work: Specialized in the morphology of algae, particularly of the Myxophyceae. Later extended research to other groups of algae, notably to a new species of the remarkable chaetophoralean green alga *Draparnaldiopsis indica*. Interested in exploration, collection and preservation of plants and plant materials and built a botanical museum and a garden. Extensively collected freshwater and marine algae from all over the country and from Ceylon.

Memberships: Fellow: INSA 37; Linnean Soc., London.

Bhardwaj, Anil

Elected: 2009
Position: Sci.; Head, Planetary Sci. Branch, SPL, ISRO, Thiruvananthapuram
Specialization: Planetary and Space Sciences; Multi-wavelength (X-ray, UV, Visible radio) Observations; Energetic Neutral Atoms (ENA) Imaging
Date and Place of Birth: 1 June 1967; Mursan, Aligarh, Uttar Pradesh
Parents: Shyam Sunder Sharma and Asha
Spouse and Children: Preeti Sharma; two *d*, (Misha and Anusha)
Address: Planetary Sciences Branch, Space Physics Laboratory, Vikram Sarabhai Space Centre, ISRO
Thiruvananthapuram 695 022, India
Tel. (0471) 256 2330, 270 6192 (O), (0471) 255 5168 (R) Mobile: 99471 49290
email: anil_bhardwaj@vssc.gov.in; Bhardwaj_spl@yahoo.com

Education: Lucknow Univ.: BSc 85, Lucknow Univ.: MSc 87, BHU Varanasi: UG Diploma, German language 89, Inst. of Technology, BHU: PhD 92.

Career: BHU: Res. Fellow, Inst. of Technology 88–90; CSIR Sr Res. Fellow, 90–93; Space Physics Laboratory, VSSC, Trivandrum: Sci. 93–; NASA Marshall Space Flight Center, Huntsville, USA: NRC-National Acad. of Sci. Sr Res. Assoc. 2004–05.

Scientific Work: Made invaluable contributions in the field of solar system X-rays, including discovery of X-rays from rings of Saturn, discovery of the pulsating auroral X-ray hot-spot on Jupiter, first observation of soft (< 2 keV) X-rays from Earth's aurora, discovery of 'X-ray flare' from Jupiter and Saturn demonstrating that the X-rays of these planets can be used to study flaring on the other hemisphere of the Sun, detection of X-rays from Mars exosphere, discovery of X-rays from Jupiter's satellites I_o and Europa and the I_o plasma torus, first detection of bremsstrahlung > 2 keV X-rays from Jupiter's aurora. First to expose the role of 'aurora on comets', and has made pioneering contributions in planetary and cometary aurora, airglow, and chemistry by developing Monte Carlo model and coupled chemistry-transport-emission model. Principal investigator of the SARA experiment on the *Chandrayaan-1* mission.

Important Publications: **(1)** X-rays in the solar system (2007) *Encyclopaedia of the solar system* 2nd Edition, Academic Press, New York, 637–658. **(2)** A pulsating auroral X-ray hot spot on Jupiter (2002) *Nature* **415**, 1000–1003. **(3)** Auroral emissions of the giant planets (2000) *Rev. Geophys.* **38**, 295–353. **(4)** Monte Carlo model for electron degradation in SO_2 gas: Cross-sections, yield spectra and efficiencies (1999) *J. Geophys. Res.* **104**, 24713–24728. **(5)** Auroral and photoelectron fluxes in cometary ionospheres (1990) *Icarus* **85**, 216–228.

Memberships: Am. Geophys. Union; KASc; Astron. Soc. India; PSSI; Fellow: Indian Geophysicsal Union 2009 • Member: Intl Astronomical Union 2009; Indian Soc. Atomic Molecular Physics; Indian Physics Assn; ISCA.

Awards & Distinctions: S S Bhatnagar Prize 2007 • ISRO Team Excellence Award 2008 • Best Paper Award, Golden Jubilee Symposium on Radio Science (INCURSI-2007) • Best Paper Award, PLASMA–95 Symposium, Banaras Hindu Univ.

Bhargava, Bhupendra Nath*

Elected: 1974
Specialization: Geophysics, Geomagnetism and Electronics
Date and Place of Birth: 25 December 1919; Sadabad, Uttar Pradesh
Parents: M N Bhargava and Bhagwati Devi
Spouse and Children: Pushpa; one *s*, one *d* (Rohit, Minod)
Last Address: B-150, Shivalik, Malviya Nagar, New Delhi 110 017, India
***Deceased:** 3 August 2009

Education: Agra Univ.: BSc 41; Allahabad Univ.: MSc 43; Ohio State Univ., USA: MSc 47.

Career: All India Radio, New Delhi: Engineer 43–45, National Bureau of Standards, USA: Guest Worker 47–48; Kodaikanal Observatory: Meteorologist 49–60, Asst Dir 60–66; Colaba and Alibag Observatories, Bombay: Dir 66–71; Indian Inst. of Geomagnetism, Bombay: Dir 71–79.

Scientific Work: Established an ionospheric laboratory with a multifrequency automatic sounder and an electronics laboratory and radio astronomy section. Developed a proton magnetometer and a 200 MHz radio telescope with an interferometer antenna system. At the Colaba and Alibag Observatories, improved the instrumentation of three magnetic stations and expanded their network with the addition of four stations at Ujjain, Jaipur, Gulmarg and Shillong; installed quartz variometers and developed proton magnetometers.

Important Publications: 60 scientific contributions in *Proc. Indian Acad. Sci., Nature* (London), *J. Atmospheric and Terrestrial Phys.*

Memberships: Fellow: Indian Geophysical Union • Member: Intl Assn of Geomagnetism and Aeronomy; INSA Panel on Earth Science.

Awards & Distinctions: NASA Magsat Award 79.

Bharucha, Faredoon Rustomjee*

Elected: 1938
Specialization: Plant Sociology
Date and Place of Birth: 4 May 1904; Bombay, Maharashtra
Parents: Rustomjee Bharucha
Spouse and Children: Bapai; one *s*, one *d*
Last Address: Institute of Science, Bombay 400 001, India
***Deceased:** 30 March 1981

Education: Wilson College, Bombay: BA, BSc; Downing College, Cambridge: MSc 30; Univ. of Montpellier, France: DSc 33.

Career: Royal Inst. of Sci., Bombay: Teaching and Res. 35, Prof. of Botany 35–57, Hon. Prof. 61; Univ. of Syria, Damascus: Prof. 57–59; Univ. of Baghdad, Iraq: Prof. 59–61; Maharshi Dayanand College, Bombay and Wadia College, Pune: Hon. Prof.

Scientific Work: Carried out fundamental work on the eco-physiology of mangroves growing on saline substrata, calcicolous communities of walls, notion of nitrophily involving plants growing on nitrogen enriched soils, hydrophilous habitats, weeds of paddy fields, vegetation of rocks, coastal sands, islets and ruderals. To acquire proper understanding of the management of forests and grasslands of Konkan and Sahyadris, these ecosystems were intensively explored. Also assessed the nutritive values of fodders and emphasized the role of trace elements in the soil. Investigated for the first time that same plant species behave differently in terms of storage and reconversion of their metabolic products under tropical and temperate conditions. Worked on nitrophilous vegetation showing that plants growing on habitats replete with decaying organic matter show an adaptive metabolic behaviour. In plant geography and bioclimatology, suggested an original classification based on precipitation/evaporation indices derived from modified Rohiver's formula of evaporation.

Memberships: Fellow: INSA 39.

Awards & Distinctions: Eminent Botanist, Carnegie-Mellon Univ, Pittsburgh, USA.

Bhat, Badekkila Venkatramana Rajarama

Elected: 2006
Position: Prof., ISI, Bangalore
Specialization: Quantum Probability; Operator Algebras; Operator Theory
Date and Place of Birth: 16 January 1966; Alankar, Karnataka
Parents: B K Venkatramana Bhat and B Draupathi
Spouse and Children: Vidya; one s, (Ananda Shikhara)
Address: Statistics and Mathematics Unit, Indian Statistical Institute, R V College Post, Bangalore 560 059, India
Tel. (080) 2848 3004/470 (O), (080) 2848 3983/504 (R), Mobile: 98442 21578
email: bhat@isibang.ac.in; URL: http://www.isibang.ac.in/~bhat/

Education: ISI: BStat 86, MStat 88, PhD 94.

Career: ISI, New Delhi, Res. Fellow 88–93; Univ. of Pisa, Italy: Postdoc Fellow 94; The Fields Inst., Canada; Postdoc Fellow 94–96; ISI, Bangalore: Assoc. Prof. 96–2000, Prof. 2000–.

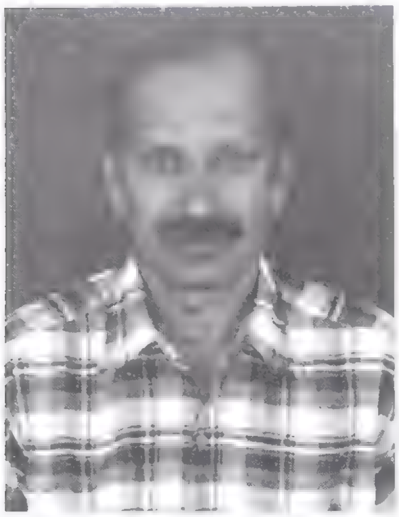
Scientific Work: Main contributions are to the dilation theory of quantum dynamical semigroups. They describe irreversible quantum dynamics and are non commutative analogues of Markov semigroups of classical probability theory. The main result is that all contractive quantum dynamical semigroups arise as expectation semigroups of quantum Markov flows and admit unique minimal dilation to semigroups of endomorphisms. In discrete time situations this theory is connected with multivariable operator theory and in continuous case with quantum stochastic calculus of Hudson and Parthasarathy.

Important Publications: **(1)** Markov dilations of non-conservative dynamical semigroups and a quantum boundary theory (1995) *Annales de l'Institut Henri Poincaré* **31,** 601–651. MR 96i, 46079. **(2)** An index theory for quantum dynamical semigroups (1996) *Trans. Am. Math. Soc.* **348**, 561–583; MR 96g, 46059. **(3)** Cocycles of CCR flows (2001) *Mem. Am. Math. Soc.* 149, 709. MR 2002e, 46083. **(4)** Tensor product systems of Hilbert modules and dilations of completely positive semigroups (2000) *Infin. Dimens. Anal. Quantum Probab. Relat. Top.* **3**, 4, 519–575. MR 2001m, 46149. **(5)** Type I product systems of Hilbert modules (2004) *J. Funct. Anal.* **212**, 1, 121–181. MR 2065240 2005d, 46147.

Memberships: American Mathematical Soc.; Assn for Quantum Probability and Infinite Dimensional Analysis.

Awards & Distinctions: IASc Assoc. 96–2001 • INSA Medal for Young Scientists 97 • Swarna Jayanthi Fellowship, DST 2001–02 • C M Birla Science Prize in Mathematics 98 • S S Bhatnagar Prize for Science and Technology (Mathematics) 2007.

Bhat, Ganapati Shankar



Elected: 2006
Position: Prof.; Chmn, Centre for Atmospheric and Oceanic Sciences, IISc, Bangalore
Specialization: Tropical Convection; Boundary Layer; Field Studies
Date and Place of Birth: 31 August 1957; Yellapur, Karnataka
Parents: Shankar Gopal Bhat and Laxmi
Spouse and Children: Savitri; one *s*, one *d*
Address: Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3071 (O), (080) 2347 3340 (R), Mobile: 94498 24340
email: bhat@caos.iisc.ernet.in; URL: http://caos.iisc.ernet.in/faculty/bhat.htm

Education: IIT Bombay: BTech 81; IISc, Bangalore: ME 83, PhD 90.

Career: IISc: Sci. Asst 84–89, Sci. Offr 89–90, Asst Prof. 91–97, Assoc. Prof. 97–2003, Prof. 2003–.

Scientific Work: Addressed key problems of the monsoon and its coupling to the oceans around India. Led the first two observational experiments under the Indian Climate Research Programme, namely the Bay of Bengal Monsoon Experiment (BOBMEX) in 99 and the Arabian Sea Monsoon Experiment (ARMEX) carried out during 2002–05. Modelled clouds in the laboratory, studied meso-scale convection over the Indian region by analysing fine resolution INSAT data and has done theoretical work on connections between dynamical chaos and open flow turbulence. Proposed a theoretical model for processes that determine the spatial extent of convective clouds.

Important Publications: **(1)** Quasi-periodic, global oscillations in sea level pressure on intraseasonal timescales (2008) *Climate Dynamics*. **(2)** The Indian drought of 2002. A subseasonal phenomenon (2006) *Q. J. R. Meteorol. Soc.*, **132**, 2583–2602. **(3)** Near surface temperature inversion over the Arabian Sea due to natural aerosols (2006) *Geophys. Res. Lett.* **33**, L02802. **(4)** Sea surface temperature of the Bay of Bengal derived from TRMM microwave imager (2004) *J. Atmos. Ocean Technol.* **21**, 1283–1290. **(5)** A volumetrically heated jet: Large eddy structure and entrainment characteristics (1996) *J. Fluid Mech.* **325**, 303–330.

Memberships: Indian Meteorol. Soc.; Ocean Soc. of India.

Awards & Distinctions: S S Bhatnagar Prize 2002 • PRL Award 2001 • P S Narayana Medal, IISc • Sabita Chaudhuri Medal, IISc • Prof. Satish Dhawan Award, Govt Karnataka 2008.

Bhat, Janardhana Venkatesh*

Elected: 1957
Specialization: Microbiology; Biochemistry
Date and Place of Birth: 3 March 1913; Tellicherry, Kerala
Spouse and Children: Prafulla Shenoy; two *s*, two *d*
Last Address: Kasturba Medical College, Manipal, India
***Deceased:** 21 December 1985

Education: Bombay Univ.: BSc Hons 35, MSc 40, PhD 42, DSc 54.

Career: St. Xaviers College, Bombay: Prof., Head 35–53; IISc, Bangalore: Prof. 53–73; ICAR, Delhi; Prof. and Emeritus Sci. 73–76; Kasturba Medical College, Manipal: Dir 76–80.

Scientific Work: Research encompassed a wide spectrum of microbiology and allied disciplines – also diverse areas as the metabolism of lactic acid and phenolics by microorganisms, the chemistry and biology of coir retting, the status of nitrogen in soils, biological nitrogen fixation and nutrition and metabolism of mulberry plants in relation to silkworms, silkworm nutrition, with particular reference to silk yield and the role of earthworms in agriculture.

Memberships: Member: Indian Soc. of Biological Chemists • President: Assn of Microbiologists of India; Assn of Food Scientists and Technologists • Fellow: INSA 58; Royal Inst. of Chem., London.

Awards & Distinctions: Rafi Ahmed Kidwai Memorial Prize 72 • Watumull Foundation Distinguished Achievement Award 82.

Bhat, Subray Venkatraman

Elected: 1997
Position: Prof., IISc, Bangalore
Specialization: Experimental Condensed Matter Physics; Solid State NMR
Electron Paramagnetic Resonance and Physics of Glass Transitions
Date and Place of Birth: 2 July 1945; Tyargal, Karnataka
Parents: Venkatraman Bhat and Ganapamma
Spouse and Children: Anitha; two *d* (Smitha and Amritha)
Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2727, (080) 2293 2209 (O), (080) 2360 0312, (R)
Mobile: 98455 57534
email: svbhat@physics.iisc.ernet.in

Education: Karnataka Univ., Dharwad: BSc P 66; Bangalore Univ., MSc P 69; IISc: PhD 74.

Career: Forensic Science Dept, Govt of Karnataka: Asst Dir 74–75; Texas Christian Univ.: Res. Assoc. 75–78; Univ. of Florida: Postdoc Fellow 78–79; IISc, Bangalore: Res. Assoc. 79–80, Sr Res. Fellow 80–81, Asst Prof. 82–87, Assoc. Prof. 87–93, Prof. 93, Dean 2006–08.

Scientific Work: First observation of the phenomenon of microwave and r.f. absorption in the high T superconductors. First unequivocal experimental demonstration of low-dimensionality effects in the NMR studies of fast ionic conductors. Substantial contributions to the study of structure (including phase transitions) and dynamics in the solid-state using the local probe techniques of NMR and EPR. First proposal and experimental evidence for the conservation of symmetry during radiation damage in solids. Observation for the first time of anomalous behaviours of EPR spin Hamiltonian parameters in charge ordering manganites which may provide important insights into the mechanism of charge/orbital ordering spin probe ESR of amorphous water; three long standing controversies resolved. First report of charge order melting, disappearance of antiferromagnetism and emergence of ferromagnetism at nanoscale in manganites.

Important Publications: **(1)** Suppression of charge order, disappearance of antiferromagnetism and emergence of ferromagnetisn in $Nd_{0.5}Ca_{0.5}MnO_3$ nanoparticles (2006) *Phys. Rev.* B 74, 144416. **(2)** Equipartition of current in parallel conductors on cooling through the superconducting transition (2006) *J. Phys.: Condens. Matter* 18, L143–L147. **(3)** Vitrification and glass transition of water: Insights from spin probe ESR (2005) *Phys. Rev. Lett.* 95, 235702 **(4)** Weakening of charge order and antiferromagnetic to ferromagnetic switch over in $Pr_{0.5}Ca_{0.5}MnO_3$ nanowires (2005) *Appl. Phys. Lett.* 87, 182503 **(5)** Absorption of electromagnetic radiation by superconducting $YBa_2Cu_3O_7$: An oxygen-induced phenomenon (1987) *J. Phys. C. Solid State Physics* **20**, L559.

Memberships: Fellow: INSA 98; NASI 2003.

Awards & Distinctions: MRSI Medal 94 • Y T Thathachari Res. Award in Sc. 2001 • IISc Alumni Award for Excellence in Res. 2003.

Bhatia, Bihari Lal*

Elected: 1935
Specialization: Protozoology
Date and Place of Birth: 14 August 1884; Amritsar, Punjab
Parents: Babu Jai Gopal Singh Bhatia
Children: two *s*, three *d*
Last Address: Department of Zoology, Punjab University, Chandigarh 160 014, India
***Deceased:** 15 July 1941

Education: Panjab Univ.: BSc 1905, MSc 1909, DSc 32.

Career: Govt College, Lahore: Demonstrator in Zoology 1905, Asst Prof. of Biol. 1906–27; Kings College, London: Res. Fellow 21–22; Govt College, Hoshiarpur: Principal 27–37; Ranbir College, Sangrur: Principal 38–40.

Scientific Work: Started with writing a textbook on zoology and later entered research. Initial work was the description of 310 species of freshwater and parasitic ciliates with their figures. Second volume on sporozoa contained an account of 320 species of parasitic protozoa.

Memberships: Fellow: INSA 37; Zoological Soc.; Royal Microscopical Soc., UK.

Bhatia, Chittranjan

Elected: 1984
Specialization: Plant Genetics; Plant Breeding; Biotechnology
Date and Place of Birth: 1 January 1936; Bulandshahr, Uttar Pradesh
Parents: Dhanpati Rai Bhatia and Lakshmi
Spouse and Children: Achal; one s (Neil)
Address: No. 17, Rohini, Plot No. 29-30, Sector 9A, Vashi , Navi, Mumbai 400 703
Tel. (022) 2765 5178 (O), (022) 2789 5178 (R), Mobile: 98205 02810
email: neil@bom7.vsnl.net.in

Education: Agra Univ.: MSc 55; IARI, New Delhi: PhD 61.

Career: Rockefeller Foundation Res. Assoc. 61–62; Agricultural Univ., Wageningen, The Netherlands: Res Assoc. 62–64; Brookhaven National Lab, New York: Res. Assoc. 64–66. IAEA, Jt FAO-IAEA Div., Austria: First Offr 74–76; BARC, Bombay, Nuclear Agriculture Dn.: Head 85–90, Assoc. Dir (Biology Group), Dir (Biomedical Group) 90–93; Govt of India, Dept of Biotechnol.: Secretary 93–95; FAO-IAEA Dn: Consultant 96, 98–99; Winrock International: Consultant 99–2000.

Scientific Work: Utilized induced genetic variability for improving crop plants; bioenergetic considerations in the genetic improvement of crop plants; biochemical genetics of wheat and grain legumes; inheritance and biochemical basis of disease resistance and development of resistant cultivars; seed protein improvement; and development of transgenic plants using agrobacterium-mediated transformation.

Important Publications: **(1)** Bioenergetic considerations in cereal breeding for protein improvement (1976) *Science* (1976) **194**, 1418–1421. **(2)** Relationship of grain yield and nutritional quality (1987) *American Soc. Agronomy Monogr.* **28**, 11–43. **(3)** Repeated DNA sequences and polyploidy in cereal crops (1986) *DNA Systematics*, CRC Press, Boca Raton, Florida, USA, **2**, 21–43. **(4)** Bioenergetics of grain protein (1990) *Nitrogen in higher plants*, John Wiley, 427–440. **(5)** Microbial diversity for soil health and plant nutrition (2008) *Molecular mechanisms of plant microbe coexistence,* Springer, 53–74.

Memberships: Member: Indian Nuclear Soc. • Fellow: INSA 88; NASI 91; TWAS 92; NAAS 92; Maharashtra Acad. of Sci.

Awards and Distinctions: SPIC Foundation Lecture Award 93 • National Acad. of Sci. Prof. R N Tandon Lecture Award 93 • INSA S K Mitra Lecture Award 85 • Om Prakash Bhasin Award 95.

Bhatia, Rajendra

Elected: 1993
Position: Distinguished Sci. ISI, New Delhi
Specialization: Analysis, Operator Theory, Matrix Analysis and Applications
Date and Place of Birth: 8 May 1952; Rohtak, Haryana
Parents: Ram Gopal and Shanti Devi
Spouse and Children: Irpinder; one *s* (Gautam)
Address: Indian Statistical Institute, 7, SJS Sansanwal Marg, New Delhi 110 016, India
Tel. (011) 4149 3943 (O), (011) 2686 7942 (R)
email: rbh@isid.ac.in

Education: Delhi Univ.: BSc 71, MSc 73; ISI, New Delhi: PhD 80.

Career: Bombay Univ.: Reader 81–84; ISI: Assoc. Prof. 84–88, Prof. 89–2007, Distinguished Sci. 2007–.

Scientific Work: Initial work on perturbation of eigenvalues and eigenvectors of operators was followed by work on perturbation of matrix functions and of matrix factorizations. Significant work on operator inequalities, positive definite matrices, operator monotone and convex functions using ideas and techniques from harmonic analysis and differential geometry.

Important Publications: **(1)** *Perturbation bounds for matrix eigenvalues* (1987) Longman; (2007) SIAM Classics in Applied Mathematics. **(2)** *Matrix analysis* (1997) Springer Graduate Texts in Mathematics. **(3)** *Positive definite matrices* (2007) Princeton Univ. Press. **(4)** *Fourier series* (1993) Hindustan; (2004) Math Assn America.

Memberships: Fellow: INSA 2005; Indian Math Soc.; Ramanujan Math Soc.; American Math Soc.; Math Assn America.

Awards & Distinctions: INSA Young Sci. Medal 82 • UGC Natl Lecturer 90 • S S Bhatnagar Prize 95 • J C Bose National Fellow 2007.

Bhatia, Sohan Lal*

Elected: 1934
Specialization: Physiology
Date and Place of Birth: 5 August 1891, Amritsar
Parent: Rao Bahadur Hira Lal Bhatia
Spouse: Sharyu Pandit
Last Address: Tara Kutir, 78, Nandidurg Road, Bangalore 560 046, India
***Deceased:** 16 July 1981

Education: St. Thomas Hospital, London: Graduate in Medicine; Univ. of Canterbury: MD; Univ. of London: FRCP.

Career: Guildford Castle: Dresser on Hospital Ship; Indian Medical Service: Prof. 20–26, Dean 1917–50, Physiol. 26–41, Principal 41–50, Dy Dir General; Grant Medical College, Bombay: Prof. of Physiology and Hygiene 20–26, Dean 26–41; ICMR Pharmaceutical Enquiry Committee: Chmn.

Scientific Work: Worked on diabetes, renal efficiency tests, gastric secretion and spleen functions. Had a hand in the establishment of AIIMS. Contributed to the restructuring of medical education in India.

Important Publications: **(1)** *Science and humanities* (1962) Orient Longmans. **(2)** *History of medicine with special reference to the Orient* (1977) Medical Council of India.

Memberships: Member: Indian Sc. Congress; Soc. of Biological Chemists; Neurological Soc; Assn of Physicians of India • Companion of the Indian Empire 48; Military Cross 18.

Awards & Distinctions: B C Roy Memorial Award 72.

Bhatia, Suresh Kumar

Elected: 1993
Position: Prof., Univ. of Queensland, Australia
Specialization: Transport and Reaction in Nanostructured Porous Media; Adsorption; Mathematical Modelling
Date and Place of Birth: 8 September 1952; Delhi
Parents: Narsingh Dev and Nirmala Devi
Spouse and Children: Meena; one *s*, one *d*
Address: Department of Chemical Engineering, University of Queensland, St Lucia, Brisbane,
QLD 4072, Australia
Tel. (+61-7) 3365 4263 (O), (+61-7) 3374 0472 (R)
email: s.bhatia@uq.edu.au

Education: IIT Kanpur: BTech. 74; Univ. of Pennsylvania; USA: MS 76, PhD 81.

Career: Booz-Allen Applied Res., Energy and Environment Dn, USA: Sr Engineer 76–78; Mobil Res. and Development Corporation, USA: Res. Engineer 81–82; Univ. of Florida, USA, Dept of Chemical Engg: Vis. Asst Prof. 82–84;

IIT Bombay, Computer Aided Design Centre: Sr Res. Engineer 84–86, Asst Prof. 86–90, Prof. 90–96; Univ. of Queensland, Australia: Prof. 96–.

Scientific Work: Formulated the random pore model for application in the modelling of fluid–solid reactions. Developed correlated random walk theories for transport in porous networks, for both bulk fluids as well as adsorbates with a nonlinear isotherm. Also developed new statistical mechanical theories of transport of adsorbates in nanopores. Demonstrated the interplay of capillary condensation phenomena with heat and mass transfer in determining the partial internal wetting and hysteresis behaviour for multiphase reactions in porous catalysts. Developed a new density functional theory based characterization technique to determine pore size and pore wall thickness distributions in carbons, based on interpretation of adsorption isotherms.

Important Publications: **(1)** A random pore model for fluid-solid reactions: Isothermal kinetic control (1980) *AIChE J.* **26**, 379–386. **(2)** Wall mediated transport in confined spaces: Exact theory for low density (2003) *Phys. Rev. Lett.* **91**, 0126102-1-0126102-4. **(3)** Characterization of pore wall heterogeneity in nanoporous carbons using adsorption: The slit pore model revisited (2004) *J. Phys. Chem.* **B 108**, 14032–14042. **(4)** Optimal conditions for adsorptive storage (2006) *Langmuir* 22 1688–1700. **(5)** Mixture transport in nanopores: Departure from existing paradigms (2008) *Phys. Rev. Lett.* **100**, 236103-1-236103-4.

Memberships: Member: Intl Adsorption Soc. • Fellow: Institution of Chemical Engineers.

Awards and Distinctions: Herdilla Award 92 • S S Bhatnagar Prize 93.

Bhatnagar, Prabhu Lal*

Elected: 1956
Specialization: Mathematics; Astronomy; Astrophysics; Fluid Mechanics; Nonlinear Waves
Date and Place of Birth: 8 August 1912; Kota, Rajasthan
Parents: Laxmilalji
Spouse and Children: Anand Kumari; four *s*, one *d*
Last Address: Mehta Research Institute, Allahabad, India
***Deceased:** 5 October 1976

Education: Maharajah's College, Jaipur: BSc 34, MSc 36; Univ. of Allahabad: DPhil 39, DSc 47.

Career: St. Stephen's College, Delhi, Dept of Mathematics: Lecturer, Reader & Head 47–56; Harvard Univ., USA: Fulbright Scholar 51–52; IISc, Bangalore, Dept of Applied Maths: Prof. 56–69; Rajasthan Univ., Jaipur: Vice-Chancellor 69–73; Himachal Pradesh Univ., Shimla, Dept of Maths: Prof. and Head 71–73; UGC National Lecturer 72; Mehta Res. Inst. of Mathematics and Mathematical Physics, Allahabad: Dir 75–76.

Scientific Work: Outstanding work on the Bhatnagar–Gross–Krook collisional model in the kinetic theory of gases which retained most of the physical properties of this system and has the merit of great mathematical simplicity. This model is useful to problems of gas dynamics. Calculated and classified the secondary flow corresponding to various geometrical conditions. Arrived at the theory of anharmonic pulsations of cepheids and white dwarf stars and this led to international recognition from astronomers. Developed a general method to study the stability of steady and self-similar flows near singularities.

Important Publications: **(1)** *Nonlinear wave propagation in one-dimensional dispensive systems* (1979) Oxford Mathematical Monograph Series.

Memberships: Member: UPSC • Fellow: INSA 50; NASI 67; Indian Soc. of Theoretical and Appl. Mechanics.

Awards & Distinctions: President Math. Soc. 62 • Indian Sci. Congr; Indian Math. Soc. 64–65, 68 • Padma Bhushan 68.

Bhatnagar, Shanti Swarup*

Elected: 1934
Specialization: Photochemistry; Magnetochemistry; Colloids
Date and Place of Birth: 21 February 1894; Bhera, Shahpur
Parents: Parameshwar Sahai Bhatnagar and Parbati
Spouse and Children: Lajwanti; two *s*, two *d*
Last Address: Centre for Scientific and Industrial Research, New Delhi, India
***Deceased:** 1 January 1955

Education: Forman Christian College: BSc 16, MSc 19; Univ. College, London: DSc 21.

Career: Forman Christian College, Dept of Physics and Chem.: Demonstrator and Sr Demonstrator 16–21; BHU: Prof. of Chem. 21–23; Univ. of Punjab, Lahore: Univ. Chemical Laboratories: Prof., Dir, Dean 24–40; Board of Scientific and Industrial Res.: Dir 40; Ministry of Education and Educational Adviser to Govt of India: Secretary 47–48; Ministry of Natural Resources and Sci. Res.: Secretary 51; Sci. and Industrial Res.: Dir 51; UGC: Chmn.

Scientific Work: Worked in almost every branch of physical chemistry but most importantly worked relating to magnetochemistry. Devised Bhatnagar–Mathus interference balance, which is a very sensitive instrument for measuring the magnetic susceptibility of substances. Work in the domain of colloids was responsible for association with the oil industry. Discovered the magnetic method to study complex problems connected with colloid formation, solid solution, atomicity of elementary molecules, allotropy, photochemical decomposition and phototropy. In the field of emulsions, made important researches on the conversion of emulsions by electrolytes.

Was instrumental in the establishment of the chain of national laboratories in the country. During his lifetime, 12 national laboratories were started and another 12 thereafter. Among other pioneering contributions is the establishment of the National Research Development Corporation of India to fill the gap between research and development. Was also responsible for the initiation of the Industrial Research Association Movement in India.

Important Publications: *Physical principles and applications of magnetochemistry* (1935) Macmillan Publishers.

Memberships: Fellow: NASI; London Royal Soc. 43; INSA 50.

Awards & Distinctions: Special Award of Attock Oil Co., Rawalpindi • Padma Vibhushan • Knighted OBE 36 • Knighted 41.

Bhatt, Mangalore Vivekananda

Elected: 1981
Specialization: Physical Organic; Organometallic; Synthetic Organic Chemistry
Date and Place of Birth: 1 February 1924; Mulki, Karnataka
Parents: Taranath Krishna Bhatt and Tulasi Bai

Spouse and Children: Sarojini; two *s*, two *d* (Siddhartha, Patanjali, Chandrasmitha, Divyavadana)
Address: 39, 1st Main, 1st cross, Siddeshwara Layout, Siddedhalli, Nagasandra Post,
Bangalore 560 073, India
Tel. (080) 2372 2878 (R), Mobile: 93419 28420
Email: msbhatt1@yahoo.co.in

Education: Madras Univ.: BSc 43; IISc, Bangalore: Assoc. 48; Bombay Univ.: PhD 54.

Career: Washington Univ., USA: Res. Assoc. 57–59; Purdue Univ., USA: Res. Assoc. 59–60, IISc, Bangalore, Dept of Organic Chem.: Lecturer 60–65, Assoc. Prof. 65–69, Dean: Faculty of Sci. 67–68, Prof. 69–84, Chmn 71–74, CSIR Emeritus Sci. 84–89; Mangalore Univ.: Vis. Prof. 86–88.

Scientific Work: Work on neighbouring group effects has achieved wide recognition. Explored the untypical and abnormal structure and reactivity pattern resulting from two groups coming into proximity. Examined the oxidation of aromatic rings by chromic acid, cerium (IV) and manganese (III) sulphates, delineating certain patterns for the first time. Showed that a 1, 2-shift takes place during oxidation involving cation radicals. Achieved a novel synthesis of vitamin A based on the principle of linking two C–10 units, a process which may have industrial potential.

Important Publications: **(1)** Cleavage of ethers, (1983) *Synthesis* 249–282 **(2)** Hydroboration as a convenient synthetic route for the contra-thermodynamic isomerization of olefins (1960) *J. Am. Chem. Soc.* 2074. **(3)** Stereo specific synthesis of trans-i-hydroxyl-8-methyl-4-5-(4'-methoxybenzo)-hydrindane, trans-1-hydroxyl -8-methyl-4,5-(3'-methyl-4'-methoxybenzo)-hydrianine and d, 1-equilenin methyl ether *J. Am. Chem. Soc.* (1956) 1369–3775. **(4)** Arene Oxides (1984) *Adv. Het. Chem.* **37**, 67–165. **(5)** A convenient method for the oxidation of polycyclic aromatic hydrocarbons to quinones, (1977) *Synthesis* 330.

Memberships: Fellow: INSA 84.

Awards & Distinctions: Fullbright Fellow 77 • First Indian representative on the council of International Union of Pure and Applied Chemistry 83–88.

Bhattacharjee, Jayanta Kumar

Elected: 1993
Position: Prof., Dept of Theoretical Physics, IACS, Kolkata
Specialization: Critical Phenomena; Turbulence; Nonlinear Dynamics
Date of Birth: 10 April 1952
Address: Department of Theoretical Physics, Indian Association for the Cultivation of Science, Jadavpur,
Kolkata 700 032, India
Tel. (033) 2473 4971/292 (O), (033) 2424 5028 (R)
email: tpjkb@iacs.res.in

Education: Calcutta Univ.: BSc 72, MSc 75; Univ. of Maryland, USA: PhD 79.

Career: Univ. of California, USA, Inst. of Theoretical Physics: Postdoc. Fellow 79–80; Univ. of Maryland: Postdoc Fellow 80–81; IFF der KFA, Julich, Wissentschaftlicher Mitarbeiter: 81–82; IIT Kanpur: Lecturer, 82–83, Asst Prof. 83–87, Prof. 87–.

Scientific Work: Established detailed theory of critical ultrasonics for single component fluids, binary liquids, ferroelectrics and superfluids. Predicted the viscosity of fluid near the critical point to become frequency-dependent if the frequency at which measurement was being made matched the relaxation rate of the critical fluctuations. Established a sum rule for the critical correlation function. Investigated the effect on the onset of convection if the heating has an oscillating component to it. Also studied approach to equilibrium in bistable systems, universality of fractal dimension of the period doubled attractor, etc.

Bhattacharjee, Somendra Mohan

Elected: 2000
Position: Prof., Inst. of Physics, Bhubaneswar
Specialization: Statistical Physics; Condensed Matter Physics
Date and Place of Birth: 24 January 1957; Dinapur, Bihar
Parents: B M Bhattacharjee and Amita
Spouse and Children: Sarama; one *s*, one *d*
Address: Institute of Physics, Sachivalaya Marg, Bhubaneswar 751 005, India
Tel. (0674) 230 1205/120 (O), (0674) 230 2448 (R)
email: somen@iopb.res.in; URL: http://www.iopb.res.in/~somen

Education: Calcutta Univ.: BSc 75, MSc 77; Carnegie Mellon Univ.: PhD 84.

Career: MMC College, Calcutta: Lecturer 79–80; Univ. of Massachusetts, USA: Postdoc 84–86; Bell Labs, USA: Postdoc 86–88; Inst. of Physics, Bhubaneswar: Sr Lecturer 88–92, Asst Prof. 92–98, Assoc. Prof. 98–2004, Prof. 2004–

Scientific Work: Interested in equilibrium and nonequilibrium phase transitions, polymers and quantum critical phenomena. The phase transitions of directed polymers are used to classify and characterize the phases of crystalline vicinal surfaces. Mathematical similarities between directed polymers in a random medium and nonequilibrium growth problems are used to study various features of nonequilibrium phase transitions.

Important Publications: **(1)** Manipulating a single adsorbed DNA for a critical end point (2008) *EuroPhys. Lett.* **83**, 68002. **(2)** Unzipping DNAs: towards the first step of replication (2000) *J. Phys.* **A 33**, L423.

Memberships: IPA Kolkata; IAPTA Orissa chapter.

Bhattacharya, Dakshina Ranjan*

Elected: 1940
Specialization: Cytology, Ichthyology
Parents: Harihar Bhattacharya and Vimla Sundari Debi
Spouse and Children: Sukumari Debi; six *s*, three *d*
Date and Place of Birth: 18 January 1888; Bulandshahr, Uttar Pradesh
Last Address: Department of Zoology, Allahabad University, Allahabad, India
***Deceased:** 26 August 1956

Education: Muir Central College, Allahabad: BSc, MSc; Trinity College, Univ. of Dublin, Ireland: PhD 24; Univ. of Paris, France: DSc 25.

Career: Muir Central College: Prof. 10–21; Allahabad Univ., Dept of Zoology: Prof., Head 21–22, Dean of Faculty 26, 29, 35; Vice-Chancellor 48–52.

Scientific Work: In cytology, most significant contribution is the establishment of the phenomenon of infiltration of cytoplasmic inclusions in egg cells. Made significant contribution to the study of oogenesis in a large number of vertebrate species as well as in certain invertebrates. Spermatogenesis in a few species was also studied. Notable contributions also include studies on: the Golgi apparatus and vacuome theory; infiltration of golgi bodies and mitochondria from the follicular epithelium to the egg; nucleolar extrusion; yolk nucleus of Balbiani; vertebrate anatomy; fish taxonomy; fish biology.

Memberships: Fellow: NASI; Zoological Soc., France; India Royal Microscopical Soc., London • President: NASI 41–42.

Awards & Distinctions: Rai Bahadur title.

Bhattacharya, Dipankar

Elected: 2003
Position: Prof., IUCAA, Pune
Specialization: High Energy Astrophysics; Neutron Stars; Cosmic Explosions
Date and Place of Birth: 29 May 1959; Maldah, West Bengal
Parents: Gowriprasad Bhattacharya and Snigdha
Spouse and Children: Sunita Nair; one *d*
Address: Inter-University Centre for Astronomy and Astrophysics
Ganeshkhind, Pune 411 007, India
Tel. (020) 2560 4210 (O), (020) 2560 4433 (R)
email: dipankar@iucaa.ernet.in; URL: http://meghnad.iucaa.ernet.in/~dipankar/

Education: Jadavpur Univ., Kolkata: BSc 79, MSc 81; IISc, Bangalore: PhD 88.

Career: Raman Res. Inst.: Sci. 87–95, Assoc. Prof. 95–2007; Univ. of Amsterdam: Postdoc Fellow 89–91; Inst. of Theoretical Physics, Santa Barbara: Vis. Member 91; IUCAA, Pune: Prof.: 2007–.

Scientific Work: Contributions include studies on evolution of neutron star magnetic fields; showed that radio pulsar magnetic fields do not decay significantly; modelled magnetic field evolution due to ohmic effects in accreting neutron stars. Proposed a successful model of supersoft X-ray sources as accreting white dwarf systems. Worked out a theory of evolution of gamma ray burst afterglows with hard electron energy distribution.

Important Publications: **(1)** Formation and evolution of binary and millisecond radio pulsars (1991) *Physics Reports* **203**, 1–124. **(2)** A novel mechanism for the decay of neutron star magnetic fields (1990) *Curr. Sci.* **59**, 31–38. **(3)** Accreting white dwarf models for CAL 83, CAL 87 and other ultrasoft X-ray sources in the LMC (1992) *Astron. Astrophys.* **262**, 97–105. **(4)** On the decay of the magnetic fields of single radio pulsars (1992) *Astron. Astrophys.* **254**, 198–212. **(5)** Flat spectrum gamma ray burst afterglows (2001) *Bull. Astronom. Soc. India* **29**, 107–114.

Memberships: Member: Intl Astronomical Union; Astronomical Soc. of India 97–2000.

Awards & Distinctions: IASc Assoc. 88–93 • M K Vainu Bappu Gold Medal, Astronomical Soc., India 90 • Sir C V Raman Award, Govt of Karnataka, 98.

Bhattacharya, Samaresh

Elected: 2006
Position: Prof., Jadavpur Univ., Kolkata
Specialization: Inorganic Chemistry; Co-ordination Chemistry; Organometallic Chemistry
Date and Place of Birth: 24 August 1960; Kolkata, West Bengal
Parents: Ananda Bhattacharya and Ava
Spouse and Children: Anuchhanda; two s (Sandipan and Subhayan)
Address: Inorganic Chemistry Section, Department of Chemistry, Jadavpur University,
Kolkata 700 032, India
Tel. (033) 2414 6223 (O), (033) 2431 0998 (R), Mobile: 98302 03354
email: sbhattacharya@chemistry.jdvu.ac.in; URL: http://www.jadavpur.edu/

Education: Jadavpur Univ.: BSc 78, MSc 80, PhD 86.

Career: IACS, Kolkata: Postdoc 86–88; Jadavpur Univ.: Lecturer 92–97, Reader 97–2005, Prof. 2005–; Univ. of Colorado, Boulder, USA: Postdoc 88–91.

Scientific Work: Has been working in the area of coordination chemistry of the platinum group of metals, with special reference to synthesis of organometallic complexes via C-H and C-C bond activations. Recent work has four major components: Variable finding of multidonor ligands; chemical transformation of coordinated ligands; metal-assisted bond activities; rational design.

Important Publications: **(1)** Synthesis, structure and electrochemical properties of a family of 2–(arylazo) phenolate complexes of ruthenium. Unusual C-C coupling and N = N cleavage (2006) *Inorg. Chem.* **45**, 9654–9663. **(2)** Unusual transformation of trialkylamines mediated by platinum (2006) *Organometallics* **25**, 5969–5972. **(3)** Rhodium mediated C-C bond activation of 2-(2', 6'- Dialkylarylazo)-4-methylphenols. Elimination and migration of alkyl groups (2007) *Organometallics* **26**, 659–603. **(4)** Synthesis, structure, spectroscopic properties and cytotoxic effect of some thiosemicarbazone complexes of palladium (2008) *New J. Chem*. 32, 105–114. **(5)** Variable coordination mode of the benzaldehyde thiosemicarbazones. Synthesis, structure and electrochemical properties of some ruthenium complexes (2008) *Eur. J. Inorg. Chem*. 4538–4546.

Memberships: Life Member: Chemical Research Soc., India; Indian Chemical Soc.; Indian Assn for the Cultivation of Science • Fellow: West Bengal Acad. Sciences and Technol. 2007.

Awards & Distinctions: S S Bhatnagar Prize in Chemical Sciences 2005 • CRSI Bronze Medal 2006.

Bhattacharya, Samir

Elected: 1996
Position: INSA Sr Sci., Visva Bharati, Santiniketan
Specialization: Comparative Endocrinology; Molecular Signalling; Reproductive Biology
Date and Place of Birth: 21 November 1942; Dacca, Bangladesh
Parents: Naresh Ch. Bhattacharya and Hemangini
Spouse and Children: Shelley; one s
Address: Department of Zoology, School of Life Sciences, Visva-Bharati University,
Santiniketan 731 235, India
Tel. (03463) 26 1176, (03463) 26 1268 (O), (03463) 26 2838 (R)
Mobile: 94331 45002
email: bhattacharyasa@gmail.com

Education: Presidency College, Calcutta: BSc 62, MSc 64; IICB, Calcutta: PhD 70.

Career: Visva-Bharati Univ.: Lecturer 71–78, Reader 78–86, Prof. 86–99; Indian Inst. of Chemical Biology, Kolkata: Dir 99–2004, 2004–07, INSA Sr Sci. 2008–.

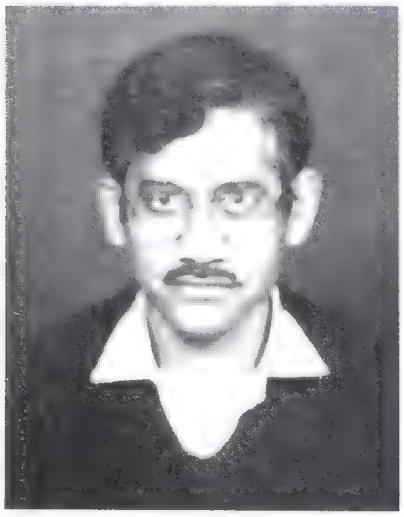
Scientific Work: Contributed significantly in understanding the molecular mechanism involved in insulin resistance and type2 diabetes. It has been shown that free fatty acid (FFA) downregulates insulin receptor (IR) gene expression that results in insulin resistance. FFA phosphorylates PKCe which in turn impairs IR promoter activity by phosphorylating HMGA1, the architectural transcription factor of IR gene. Contributed to the understanding and therapy of two types of cancers – chronic myelogenous leukemia and prostate cancer. Has shown that a chemical compound, mahanine, isolated and purified from *M. koenigii* specifically killed androgen independent prostate cancer cells by deactivating Akt and inducing the expression of an epigenetically sleeping tumour suppressor gene RASSF1A. Has also contributed to the understanding of thyroid–gonad inter-relationship and regulation of molecular signalling in meiotic cell cycle.

Important Publications: **(1)** A new cell secreting insulin (2003) *Endocrinology* **144**, 4, 1585–1593. **(2)** Chlorogenic acid inhibits Bcr-Abl tyrosine kinase and triggers p38 mitogen-activated protein kinase-dependent apoptosis in chronic myelogenous leukemic cells (2004) *Blood* **104**, 8, 2514–1522. **(3)** Differential expression of procollagen lysine 2-oxoglutarate 5-deoxygenase and matrix metalloproteinase isoforms in hypothyroid rat ovary and disintegration of extracellular matrix (2005) *Endocrinology* **146**, 2963–2975. **(4)** Mahanine inhibits growth and induces apoptosis in prostate cancer cells through the deactivation of Akt and activation of caspases (2006) *The Prostate* **66**, 1257–1265. **(5)** Lipid induced overexpression of NF-kB in skeletal muscle cells is linked to insulin resistance (2008) *BBA-molecular basis of disease* (In press).

Memberships: Fellow: INSA 90; NASI 94.

Awards & Distinctions: J G Law Gold Medal 92 • M R N Prasad Memorial Lecture Award 98 • Meghnad Saha Endowment Memorial Lecture Award 99 • Rafi Ahmed Kidwai Award 99 • Barclay Memorial Gold Medal Award 2001 • FICCI Award 2001 • CSIR Technology Award 2002 • B C Guha Memorial Lecture Award 2004 • Prof. B Kizar Ahamath Endowment lecture (Medicine) 2004 • C K Hora Gold Medal 2007 • Sam G T Moses Award (RSSDI), 2007.

Bhattacharya, Santanu



Elected: 2000
Position: Prof., IISc, Bangalore
Specialization: Chemical Biology; Molecular Design and Chemistry of Materials; Nanomaterials
Date and Place of Birth: 23 April 1958; Calcutta, West Bengal
Parents: Suniti Bhushan Bhattacharya and Kalyani
Spouse and Children: Swati; one *d* (Dyuti)
Address: Department of Organic Chemistry, Indian Institute of Science
Bangalore 560 012, India
Tel. (080) 2293 2664, (080) 2293 2777 (O), (080) 2360 1944 (R)
email: sb@orgchem.iisc.ernet.in

Education: Univ. of Calcutta: BSc Hons 79; MSc 81; Rutgers Univ., USA: PhD 88.

Career: Univ. of Calcutta: CSIR Fellow 83–84; Rutgers Univ USA: Teaching Asst 84–86, Res. Asst 86–87, Marion Johnson & Bevier Fellow 87–88; Mass. Inst. of Technol.: Postdoc Res. Assoc. 88–91; IISc: Asst Prof. 91–96, Assoc. Prof. 96–2001, Prof. 2001–date; JNCASR: Hon. Faculty 97.

Scientific Work: Made original contributions in several emerging areas of contemporary chemical biology, bioorganic chemistry and supramolecular chemistry. Research work spanned various themes at the interfaces of chemistry with biology and materials science. Specific research areas include de novo design of lipids and correlation of molecular structures with their properties at the membrane level; mechanism of gene transfer by cationic lipids; design, synthesis and applications of novel DNA binding and modifying agents; hydrolase mimics based on micellar ensembles; gelators, nano-materials and sensors.

Important Publications: (1) Advances in gene delivery through molecular design of cationic lipids (2009) *Chem. Comm.* 4632. (2) Two-component hydrogels comprising fatty acids and amines: structure, properties, and application as a template for the synthesis of metal nanoparticles (2008) *Chem. A Eur. J.* **14**, 6534. (3) Design, synthesis and in vitro gene delivery efficacies of novel cholesterol-based gemini cationic lipids and their serum compatibility: A structure-activity investigation (2007) *J. Med. Chem.* **50**, 2432. (4) Modulation of viscoelastic properties of physical gels by nanoparticle doping: Influence of the nanoparticle capping agent (2006) *Angew. Chem. Int.* Ed. **45**, 2934. (5) A tetrameric sugar-based azobenzene that gels water at various pH values and in the presence of salts (2005) *J. Org. Chem.* **70**, 6574.

Memberships: Chemical Research Soc., India.

Awards & Distinctions: Chemical Research Soc. • India Silver Medal • G D Birla Award • Bhagyatara National Award • S S Bhatnagar Prize • Bioscience Career Development Award, DBT • Chemical Research Soc. India Bronze Medal • B M Birla Prize in Chemistry • Material Research Soc. India Medal • Swarnajayanti Fellowship Award, DST • Special NIH Fellow at MIT • Bevier Award, New Jersey • Morgan Fellow, New Jersey • Marion Johnson Award, New Jersey • Merit National Scholar, Govt of India • P B Sarkar Prize.

Bhattacharya, Sourendra Kumar

Elected: 1994
Position: Vis. Prof., PRL, Ahmedabad
Specialization: Isotope Geochemistry; Anomalous Isotope Fractionation
Date and Place of Birth: 4 January 1948; Calcutta, West Bengal
Parents: Bimalapada Bhattacharya and Chinmoyee Devi
Spouse and Children: Dipti; one *s*, one *d*
Address: Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4269 (O), (079) 2674 2463 (R), Mobile: 97271 71926
email: bhatta@prl.res.in

Education: Univ. of Calcutta: BSc Hons 68, MSc 70; Gujarat Univ.: PhD 79; TIFR, Bombay: Advanced Graduate Course 73.

Career: TIFR, Bombay: Vis. Member 71–73; Tokyo Univ., Japan: Mombusho Scholar 76–77; PRL, Ahmedabad: Res. Assoc. 73–81, Fellow 81–88, Assoc. Prof. 88–95, Prof. 95–2002; Sr Prof. 2002–08; Vis. Prof. 2008–date; Geological Survey of Japan, INSA-JSPS 82; Univ. of California, USA: Res. Sci. 98; CNRS Vis. Prof. 2007; Lady Davis Vis. Prof. 2007; Purdue Univ.: Vis. Prof. 2008; Tokyo Univ.: Vis. Prof. 2009.

Scientific Work: Worked on production rate calculations for radionuclides and tracks formed by cosmic ray interactions in meteorites and lunar rocks. Studied measurement and interpretation of cosmogenic radionuclides, Mn-53, Al-26, Na-22 and Co-60 along with fission track depth profiles in meteorites. Studies on nuclear tracks and Mn-53 activity led to the determination of depth profiles in meteorites. Studied tree rings and ground water for stable isotope systematics of C, H and O. Carried out the carbon and oxygen isotope systematics on foraminifera to decipher temporal variations in paleomonsoonal (NE and SW) intensities and associated ocean circulation during the glacial-interglacial stages. Presently engaged in mass independent isotopic fractionation in ozone, carbon dioxide molecules. Discovery of nuclear spin effect in enhanced ^{17}O and ^{13}C isotopes in photodissociation products of CO_2.

Important Publications: **(1)** Determination of intramolecular isotope distribution of ozone by oxidation reaction with silver metal (2008) *J. Geophys. Res.* **113**, D03303. **(2)** Anomalous oxygen isotope enrichment in CO_2 produced from O+CO: Estimates based on experimental results and model predictions (2006) *J. Chem. Phys.* **124**, 234301. **(3)** Palaeovegetational reconstruction in late miocene: A case study based on early diagenetic carbonate cement from the Indian Siwalik (2005) *Palaeo-Palaeo-Palaeo* **228**, 245–259. **(4)** Distribution of oxygen and hydrogen isotopes in shallow groundwater from south India: Geographical influence of a dual monsoon system (2003) *J. Hydrol.* **271**, 226–239. **(5)** Investigation on oxygen isotopic exchange between CO_2 and O (1D): Experimental demonstration of stratospheric results (2003) *J. Geophys. Res.* **108**, D23, 4724.

Memberships: Fellow: Geol. Soc. India.

Bhattacharya, Sudha

Elected: 2001
Position: Prof., JNU, New Delhi
Specialization: Molecular Biology; Molecular Parasitology; Genomics
Date and Place of Birth: 7 March 1952; New Delhi
Parents: Rajeshwar Lal Sehgal and Chandra Kanta
Spouse and Children: Alok Bhattacharya; one *d* (Shilpi)
Addrress: School of Environmental Sciences, Jawaharlal Nehru University, New Delhi 110 067, India
Tel. (011) 2670 4308, 2671 7557/4308 (O), (011) 2613 3295 (R), Mobile: 98184 76740
email: sb@mail.jnu.ac.in, sbjnu110@gmail.com

Education: Delhi Univ.: BSc 71; IARI, New Delhi: MSc 73, PhD 77.

Career: Stanford Univ., USA: Postdoc Fellow 77–78; Boston Biomedical Res. Inst., USA: Staff Fellow 78–81; AIIMS, New Delhi: Res. Offr: 81–82; Tata Res. Development and Design Centre, Pune: Sci. 82–85; JNU, New Delhi: Asst Prof. 86–95, Assoc. Prof. and Prof. 95–.

Scientific Work: Has been working on the protozoan parasite *Entamoeba histolytica* which causes amoebiasis in humans. Focussing on two DNA molecules in this organism, as detailed below. Ribosomal DNA circle – reported that ribosomal RNA genes in *E. histolytica* are located on a circular plasmid, with two rDNA transcription units organized as inverted repeats. Showed that the molecule uses multiple, dispersed replication origins. The choice of origin varies with growth conditions. Strikingly, the transcription regulatory sequences of the two rDNAs are completely dissimilar. Showed that although both units are transcribed, they are differentially regulated under stress. A noncoding RNA is implicated in this regulation. Non-LTR retrotransposons – first to report existence of retrotransposons in the *E. histolytica* genome. Described the three families of EhLINEs/SINEs and investigated the mode of retrotransposition. Showed that the LINE-encoded endonuclease was employed for SINE insertion also.

Important Publications: **(1)** Replication initiates at multiple random sites in the ribosomal DNA plasmid of the protozoan parasite *Entamoeba histolytica* (1996) *Mol. Cell Biol.* **16**, 2314–2324. **(2)** Differential use of multiple replication origins in the ribosomal DNA episome of the protozoan parasite *Entamoeba histolytica* (2003) *Nucleic Acids Res.* **31**, 2035–2044. **(3)** An *Entamoeba histolytica* LINE/SINE pair inserts at common target sites cleaved by the restriction enzyme-like LINE-encoded endonuclease (2004) *Eukaryotic Cell* **3**, 170–179. **(4)** Identification of insertion hot spots for non-LTR retrotransposons: Computational and biochemical application to *Entamoeba histolytica* (2006) *Nucleic Acids Res.* **34**, 5752–5763. **(5)** Promoter analysis of palindromic transcription units in the ribosomal DNA circle of *Entamoeba histolytica* (2009) *Eukaryotic Cell* **8**, 69–76.

Memberships: Fellow: NASI 2008.

Awards & Distinctions: Rockefeller Biotechnology Career Development Award 96.

Bhattacharyya, Archana

Elected: 2007
Position: Prof., Dir, Indian Inst. of Geomagnetism, Navi Mumbai
Specialization: Ionospheric Physics; Geomagnetism; Space Weather
Date and Place of Birth: 1 June 1948; Allahabad, Uttar Pradesh
Parents: Nishanth and Momota Chatterjee
Spouse and Children: Partha Sarathy Bhattacharyya; one *d* (Sujata)
Address: Indian Institute of Geomagnetism, Kalamboli Highway, New Panvel,
Navi Mumbai 410 218, India
Tel. (022) 2748 0763, (022) 2748 4017 (O), (022) 2772 2014 (R), Mobile: 98690 10134
email: abh@iigs.iigm.res.in

Education: Univ. of Delhi: BSc (Hons) 67, MSc 69; Northwestern Univ., USA: PhD 75.

Career: Indian Inst. of Geomagnetism: Res. Assoc. 78–83, Fellow 83–88, Reader 88–93, Assoc. Prof. 93–98, Prof. 99–, Dir 2005–; Univ. of Illinois, Champaign-Urbana, USA: Vis. Res. Assoc. 86–87, Air Force Res. Laboratory, Massachussetts, USA: National Res. Council Sr. Res. Assoc. 98–2000.

Scientific Work: Scientific contributions have been mainly in the areas of radio wave scattering by ionospheric irregularities and evolution of equatorial ionospheric plasma bubbles. These include theoretical derivation of scintillation characteristics for strong scattering conditions, and a theory for the role of ionospheric *E* and *F* region coupling in the evolution of the Rayleigh–Taylor instability in the equatorial ionospheric plasma. Results derived from ionospheric scintillations on GPS signals have demonstrated, for the first time, the relationship between phase scintillations and variations in total electron content derived from GPS signals. Estimation of the age of the irregularities, which produce the observed scintillations, paved the way for establishment of a cause and effect relationship between magnetic storms and equatorial ionospheric irregularities using ground-based radio techniques. A theory was developed, which suggested the presence of magnetic field fluctuations associated with equatorial plasma bubbles, and this phenomenon is now being studied using satellite data.

Important Publications: **(1)** Chaotic behaviour of ionospheric turbulence from scintillation measurements (1990) *Geophys. Res. Lett.* **17**, 733–736. **(2)** Deducing turbulence parameters from transionospheric scintillation measurements (1992) *Space Sci. Rev.* **61**, 335–386. **(3)** Changes in cosmic ray cut-off rigidities due to secular variations of the geomagnetic field (1997) *Annales Geophysicae* **15**, 734–739. **(4)** Night-time equatorial ionosphere: GPS scintillations and differential carrier phase fluctuations (2000) *Radio Sci.* **35**, 209–224. **(5)** A transmission line analogy for the development of equatorial ionospheric bubbles (2000) *J. Geophys. Res.* **105**, 24, 941–24, 950.

Memberships: Fellow: NASI 2004; INSA 2009 • Vice President: Indian Geophysical Union; American Geophysical Union.

Awards & Distinctions: Prof. K S Krishnan Gold Medal • Prof. K R Ramanathan Memorial Lecture and Gold Medal, Indian Geophysical Union 2008.

Bhattacharyya, Bhabatarak

Elected: 1993
Position: Prof., Bose Inst., Kolkata
Specialization: Biophysical Chemistry; Biochemistry; Molecular Spectroscopy
Date and Place of Birth: 2 December 1944; Calcutta
Parents: Bhabaranjan Bhattacharyya and Malancha
Spouse and Children: Sikha; two *d* (Sudeshna, Sanchari)
Address: Department of Biochemistry, Bose Institute, P-1/12, CIT Scheme,
Kolkata 700 054, India
Tel. (033) 2355 0256 (O), (033) 2422 3812 (R)
email: bablu@boseinst.ernet.in

Education: Calcutta Univ.: BSc Hons 65, MSc 67, PhD 74; NIH, USA: Postdoc. Res. 77.

Career: Bose Inst., Calcutta: Lecturer 78–82, Reader 82–89, Prof. 89–.

Scientific Work: Synthesized various analogues of colchicine as well as modified tubulin structures to understand structure-function relationship of colchicine-tubulin interaction. Study has created a body of knowledge regarding the recognition of antimitotic agents by tubulin at the molecular level on which design of new antimitotic drugs can be based. Also made significant contributions in identifying the functional and regulatory domains of colchicine binding, monomer–monomer interactions during the dimer formation and protein–protein interactions during microtubule formations using time-resolved fluorescence, fluorescence anisotropy, donor–acceptor pair energy transfer and excimer formations.

Important Publications: **(1)** Promotion of fluorescence upon binding of colchicine to tubulin (1974) *Proc. Natl. Acad. Sci.* USA **71**, 7, 2627–2631. **(2)** Polymerisation of membrane tubulin (1976) *Nature*. **264**, 5586, 576–577. **(3)** Role of B-ring of colchicine in its binding to tubulin (1981) *J. Biol. Chem.* **256**, 12, 6241–6244. **(4)** Thermodynamics of colchicinoid-tubulin interactions:role of B-ring and c-7 substituent (1996) *J. Biol. Chem.* **271**, 6, 2897–2901. **(5)** Chaperone-like activity of tubulin (1998) *J. Biol. Chem.* **273**, 46, 30077–30080.

Memberships: Fellow: INSA 96; NASI 95; FTWAS 2004.

Awards & Distinctions: P S Sarma Memorial Award 87 • S S Bhatnagar Prize 88 • B C Guha Memorial 2005.

Bhattacharyya, Jagadish Chandra

Elected: 1979
Specialization: Experimental Astrophysics
Date and Place of Birth: 1 September 1930; Calcutta
Parents: P C Bhattacharyya and Mrinalini
Spouse and Children: Indira; one *s*, one *d*
Address: 215, Trinity Enclave, Old Madras Road, Bangalore 560 093, India
Tel. (080) 2524 9362 (R)

Education: Calcutta Univ.: BSc 49, MSc 51, DPhil 71.

Career: India Meteorological Dept, Delhi: Asst Meteorologist 53–55; IMD, Poona: Meteorologist 55–64; Astrophysical Observatory, Kodaikanal: Meteorologist 64–66, Asst Dir 66–72; IIA, Bangalore: Assoc. Prof. 72–81, Prof. 81–83, Dir 83–90, Emeritus Prof. 90.

Scientific Work: Designed, developed and employed new electronic instruments for observing physical parameters in natural phenomena. Utilized changing characteristics of Earth's ionosphere for estimating the increase in solar ultraviolet radiation flux during flares. Constructed the Kodaikanal solar magnetograph for measurement of strengths of magnetic fields on the sun, by precise determination of polarization profiles along selected Fraunhofer lines. Developed fast electronic recording systems for astronomical photometry. Utilizing rare occultation events, discovered new features in the environment of giant outer planets. Discovered the ring system surrounding the planet Uranus. Completed the project of design and construction of the 2.3 metre Vainu Bappu Telescope, the first large optical telescope built in India.

Memberships: Fellow: Royal Astron. Soc., London 66; Astron. Soc. India 72; IETE; INSA 81; NASI 88.

Awards & Distinctions: UGC-Hari Om Trust Award • C V Raman Award 86.

Bhattacharyya, Kankan

Elected: 1997
Position: Sr Prof., IACS, Kolkata
Specialization: Ultrafast Laser Spectroscopy ; Organized Assemblies
Date and Place of Birth: 17 November 1954; Calcutta, West Bengal
Parents: Dhirendra Ranjan Bhattacharyya and Pratima
Spouse: Kinkini
Address: Department of Physical Chemistry, Indian Association for the Cultivation of Science,
Jadavpur, Kolkata 700 032, India
Tel. (033) 2499 0141 (O), (033) 2435 9118 (R)
email: pckb@iacs.res.in; URL: http://iacs.res.in/pckb.html

Education: Calcutta Univ.: BSc 74, MSc 76, PhD 84.

Career: Univ. of Notre Dame, USA: Res. Assoc. 84–86; Columbia Univ., USA, Res. Assoc. 86–87; Indian Assn for Cultivation of Sci.: Sr Lecturer 87–92, Reader 92–98, Prof. 98–2005, Sr Prof. 2005–.

Scientific Work: Studied organized assemblies using picosecond time-resolved emission and surface second harmonic generation. Has done extensive semiempirical quantum chemical calculations to augment the experimental studies. Studied how different organized media affect three ultrafast processes namely the twisted intramolecular charge transfer process (TICT), solvation dynamics and excited state intramolecular proton transfer (ESIPT) processes. Most important observations are: the marked slowing down of the TICT process inside the hydrophobic pockets of the cyclodextrin, etc. and of the solvation dynamics in the water pool of the reverse micelles or the stern layer of the micelles compared to ordinary bulk water; the appreciable effects of salting-in (urea, etc.) and salting-out agents on the hydrophobic binding of organic fluorophores to cyclodextrins, etc. Using resonance SHG investigated how the population of *p*-nitrophenol at the water surface is affected on addition of a surfactant (CTAB), urea and several salts.

Important Publications: **(1)** Nature of biological water: A femtosecond study (2008) *Chem. Commun.* 2848. **(2)** Solvation dynamics and proton transfer in supramolecular assemblies (2003) *Acc. Chem. Res.* 36, 95. **(3)** Slow solvation dynamics at the active site of an enzyme: Implications for catalysis (2005) *Biochemistry* 44, 8940. **(4)** A femtosecond study of excitation wavelength dependence of solvation dynamics in PEO-PPO-PEO triblock co-polymer micelle (2006) *J. Chem. Phys.* **124**, 204905. **(5)** Femtosecond study of partially folded states of cytochrome C by solvation dynamics (2006) *J. Phys. Chem. B* 110, 1056.

Memberships: Fellow: INSA 2002; NASI 2007; TWAS 2008 • Member: India–Japan Science Council.

Awards & Distinctions: B C Dev Memorial Prize 97 • S S Bhatnagar Prize 97 • CSIR New Millenium Science Leadership Medal 2000 • CRSI Silver Medal 2006 • J C Bose Fellowship 2007.

Bhattacharyya, Prabhat Kumar*

Elected: 1976
Specialization: Biochemistry; Organic Chemistry
Date and Place of Birth: 22 October 1921; Calcutta
Parents: Bishnupada and Parimal
Spouse and Children: Audri; four *s* (Rajan, Alak, Palak, Anjan)
Last Address: Flat 1-S, 177, Jodhpur Park, Calcutta 700 068, India
***Deceased:** 16 April 1996

Education: Calcutta Univ.: BSc 40, MSc 42; Univ. of Illinois, USA: PhD 49.

Career: Univ. of Calcutta: Res. Fellow 42–46; Univ. of Illinois: Graduate Asst 47–49, Postdoc Res. Fellow 49–54; NCL, Pune: Sr Sci. Offr 54–64, Asst Dir 64–66; Indian Drugs & Pharmaceuticals Ltd, Rishikesh, R&D Antibiotics Project: Chief Controller 66–70; IISc, Bangalore: Prof. of Organic Chem. 70–82.

Scientific Work: Tackled problems which require a combination of both biochemistry and organic chemistry. Made extensive studies on vitamins, antibiotics, carnitine (vitamin B), microbiological transformations of terpenes, synthesis of aldosterone from Kurchi alkaloids, chemical approaches to drug allergy, affinity systems as probes for drug–membrane interactions and enzyme models. Discovered independently chloromycetin, endomycin and a new reaction-displacement of a nitro group by acyloxy group under Friedel–Crafts reaction conditions.

Memberships: Fellow: INSA 76.

Awards & Distinctions: CSIR Silver Jubilee Award 73 • Acharya Jagadish Chandra Bose Medal 75 • Acharya P C Ray Medal 79.

Bhattacharyya, Sankar Prasad

Elected: 1993
Position: Sr Prof., IACS, Kolkata
Specialization: Quantum Chemistry
Date and Place of Birth: 8 March 1948; Hooghly, West Bengal
Parents: Arabinda Nath Bhattacharyya and Maya
Spouse and Children: Bharati; one *s*, one *d*
Address: Department of Physical Chemistry
Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 5374 (O), (033) 2481 8095 (R), Mobile: 90512 85012
email: pcspb@iacs.res.in, URL: http://www.iacs.res.in/pcspb.html

Education: Burdwan Univ.: BSc Hons 69, MSc 71; Calcutta Univ.: PhD 79.

Career: IACS, Calcutta, Dept of Physical Chem.: Res. Asst 77–79, Lecturer 79–82, Reader 84–91, Prof. 92–; Manipur Univ.: Assoc. Prof., Head of Chem. Dept 82–84.

Scientific Work: Perfected a general methodology (the orthogonal gradient method) for computing single and multiconfigurational SCF wavefunction. Proposed a penalized functional technique for the direct determination of constrained single particle density and a new route to effective Hamiltonians. Developed a local model of reaction path analysis. Developed new techniques for computing ground and excited state wavefunctions by invoking the simulated annealing method and genetic algorithms. Proposed methods for stochastic diagonalization of Hamiltonian matrices (*H*) by serial as well as parallel genetic algorithm driven strategies either with or without energy-dependent or independent partitioning of *H* matrix. Developed single as well as multiconfigurational time-dependent Fourier grid Hamiltonian method for studying real time quantum dynamics of complex systems. Initiated work on the modelling of electronic structure, non-linear optical response and dynamics of micro and mesoscopic systems (quantum dots). Worked on dynamics of PT symmetric Hamiltonians and quantum adiabatic switching algorithms.

Awards & Distinctions: ISCA Young Scientist Award 82.

Bhattacharyya, Sasanka Chandra

Elected: 1975
Specialization: Organic Chemistry
Date and Place of Birth: 31 August 1918; Sylhet, Bangladesh
Parents: Srish Chandra Bhattacharyya and Kadambini Devi
Spouse and Children: Gita; one *s*, two *d*
Address: 49/7, Canal Road, Kishanpur, Dehradun 248 009, Uttaranchal, India
Tel. (0135) 273 4540 (R)

Education: Calcutta Univ.: BSc 38; Dacca Univ.: MSc 40; IISc, Bangalore and Dacca Univ.: PhD 44; Cambridge Univ., UK: PhD 49, ScD 64.

Career: Herts Pharmaceuticals Ltd, UK: Res. Chemist 49–50; IISc, Bangalore, Dept of Chem.: Lecturer 50–51; NCL, Poona: Sr Offr and Asst Dir 51–66; IIT, Bombay: Sr Prof. & Dy Dir 66–77, Hon. Vis. Prof. 84; Bose Inst., Calcutta: Dir 77–84.

Scientific Work: Responsible for the isolation and structure determination of over 100 complex new natural products, especially terpenoids and coumarins. Synthesized all the naturally occurring musk compounds; the constituents of sandalwood oil, also lavandulol, rose oxide, isojasmone, dihydrojasmone and most of the drugs of the visnadin group from Jatamansin (selinene). Evolved convenient approaches for the synthesis of prostaglandins. Synthesized beta-ionone using a new solvent system and developed new analytical reagents. Developed lithioethylenediamine as a reagent for synthesis and structural changes. Collected new stationary phases for gas–liquid chromatography and useful results on molecular spectroscopy and mass spectrometry.

Memberships: Fellow: INSA 63 • President: Essential Oil Assn India.

Awards & Distinctions: S S Bhatnagar Prize 62 • INSA T R Seshadri Seventieth Birthday Commemoration Medal 79 • ICMR B C Roy National Award 78 • G P Chatterjee Memorial Lecture Award 81 • IISc Platinum Jubilee Medal 85.

Bhattacherjee, Satyendra Kumar

Elected: 1973
Specialization: Experimental Nuclear Physics
Date and Place of Birth: 2 October 1926; Murshidabad, West Bengal
Parents: Jitendra Bhusan and Vasantalata
Spouse and Children: Sabita; two *s*, one *d*
Address: RH V, No. J-19, Sector 6, Vashi, Navi Mumbai 400 703, India
Tel. (022) 2782 2274 (R)

Education: Calcutta Univ.: BSc Hons 46, MSc 48; Univ. of Notre Dame, USA: PhD 53.

Career: TIFR Mumbai: Res Fellow 54–62, Reader 62–66, Assoc. Prof. 66–74, Prof. 74–86; Weizmann Inst. Sc. Rochevet, Israel: Weizmann Fellow 61–62; California Inst. of Technol., USA: Sr Res. Fellow 66–68; State Univ. of New York, USA: Sr Res. Assoc. 73–74; Inst. fur Strahlen und Kernphysik, Bonn Univ., Germany 79: Laboratorie Rene Bernas, Paris Univ., France 83; Johannes Gutenburg Univ., Germany 83–84; Lawrence Berkeley Lab., Univ. of California, USA 87–88: Vis. Prof.; Weizmann Inst. of Sc., Israel: Fellow 61–62.

Scientific Work: Contributed to the well-known fact that nucleon spectra exhibit a dramatic change in the transition from neutron number 88 to 90, signifying transition from near spherical to highly deformed structure. Experimental studies in few cases established the fact that the isospin is fairly a good quantum number even in this mass range, at least for the low-lying states generated by beta-decays. Best experimental limit for nuclear stability against charge nonconserving decay was obtained. The collinear fast-beam laser spectroscopy has been used to measure the isotope shifts of the even-even Hg ($Z = 80$) in the range $182 \leq 198$ at the on-line mass spectra ISOLDE. The interpretation concentrates on variations of the nuclear charge radii and shapes and indicates a strong discontinuity occurring in the light isotopes with $A < 186$; the exceptionally large isomer shifts in ^{185}Hg and the very large odd–even staggering in the mean-squared charge radii in the lighter Hg nuclei are the other features of these studies.

Bhatti, Hamid Khan*

Elected: 1940
Specialization: Ichthyology
Date and Place of Birth: 7 February 1895; Sialkot, Punjab
Last Address: F C College, Lahore
***Deceased:** 14 December 1980

Education: Govt College, Lahore: BSc 14; Univ. of Punjab: LLB, MSc 16.

Career: Superintendent of Fisheries, Punjab: Fisheries Res. Offr 36–39, Game Warden, Punjab 39–44, Warden of Fisheries, Punjab 45–47; Warden of Game and Fisheries 47–48, Univ. of Punjab, Dept of Zoology: Head 48–53; F C College, Lahore: Prof. of Zoology 53–71; Swarthmore College, US: Vis. Prof. of Biology 62–63.

Scientific Work: Research deals with the habits and habitats, reproduction, breeding and spawning habits, ovulation, parental care, methods of fishing, fish diseases and fish mortality, larvivorous fishes, transport of live fish, weight–length relationships, fish culture, fisheries legislation, conservation and development, stream pollution, exotic fishes and catching and marketing of fish in Punjab. First to induce fishes to spawn by the use of mammalian pituitary in South Asia. Succeeded in inducing ovulation of *Cirrhinus mrigala* (Hamilton). Published several papers on earthworms.

Memberships: Fellow: London Royal Microscopical Soc. 23; Cambridge Philosophical Soc 35; INSA 44; Pakistan Acad. Sci. 53 • President: Pakistan Acad. of Sci. 72–73; Zool. Soc. of Pakistan 73–75.

Bhatwadekar, Shrikant Mahadeo

Elected: 1998
Position: Sr Prof., TIFR, Mumbai
Specialization: Commutative Algebra; Algebraic Geometry
Date and Place of Birth: 6 May 1946; Pune, Maharashtra
Parents: Mahadeo Moreshvar Bhatwadekar and Saguna
Spouse and Children: Medha Shrikant; two *d*
Address: School of Mathematics, Tata Institute of Fundamental Research
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2281 (O), (022) 2280 4596 (R)
email: smb@math.tifr.res.in

Education: Pune Univ.: BSc 66; Univ. of Bombay: MSc 68, PhD 75.

Career: TIFR, Mumbai: Fellow 77–86, Reader 86–93, Assoc. Prof. 93–97, Prof. 2000–06, Sr Prof. 2006–; Univ. of Kentucky, Lexington, USA: Vis. Prof. 84–85; Inst. for Advanced Study, Princeton, USA: Vis. Member 85–86.

Scientific Work: Study of projective modules over polynomial and Laurent polynomial extensions of noetherian rings from point of view of existence of unimodular element and cancellative property. Study of 1 A^1-fibrations of subalgebras of polynomial extensions. Study of relationship between Euler class of vector bundles and its generic sections and nowhere vanishing sections over smooth affine varieties over field, especially over reals.

Bhawalkar, Dilip Devidas

Elected: 1986
Position: Director, Quantalase Enterprises Pvt. Ltd.
Specialization: Lasers; Laser Instrumentation
Date and Place of Birth: 16 October 1940; Pune
Parents: D R Bhawalkar and Vanamala
Spouse and Children: Chanda; one *s*, two *d* (Jayant, Anupama)
Address: 26, Paramanu Nagar, Indore 452 012, India
Tel. (0731) 276 4707 (O), (0731) 232 0031 (R), Mobile: 93032 37573
email: ddbhawalkar@yahoo.com

Education: Sagar Univ.: BSc 59, MSc Phys. 61; Southampton Univ.: MSc Electronics 63, PhD 66.

Career: Southampton Univ.: Res. Asst 62–65, Lecturer 66–67; BARC, Bombay: Sci. Offr 67–87, Laser Dn: Head 74–87; CAT, Indore: Dir 87–2003; Quantalase Enterprises Pvt. Ltd: Dir 2006.

Scientific Work: Work related to the study of ruby laser and second harmonic generation with ruby laser and He–Ne lasers. Reported for the first time frequency generation of IR lines from He–Ne laser and second harmonic higher order modes of lasers. Developed several lasers including He–Ne, Co_2, N_2, Nd glass, Nd YAG and dye, most of these for the first time in India. Carried out theoretical and experimental studies on kinetics of CO_2 lasers and on optical resonators. To study laser-produced plasmas, a 10 gigawatt Nd glass laser oscillator amplifiers and plasma diagnostic techniques were developed. Using these, laser absorption energy transport and hydrodynamics of the plasma were studied.

Important Publications: **(1)** Measurement of local length of pump induced lenses in laser media (1972) *IEEE J. Quantum Electronics* QE-**8**, 497–499. **(2)** Effect of internal Fabry Perot on modes of a resonator (1977) *Opt. Commun.* **23**, 427–429. **(3)** Performance of a general assymmetric unstable Nd glass ring laser (1986) *IEEE J. Quantum Electronics* QE-22. **(4)** Development of picosecond time resolution optical and X-ray streak cameras (1995) *Sadhana* **20**, 6, 937–954.

Memberships: Fellow: Opt. Soc. of Am.; INSA 90; NASI 90; Optical Soc. of India; Indian Laser Assn • Foreign Fellow: Russian Acad. Natural Sci.

Awards & Distinctions: Rutherford Award of IERE, London 64 • S S Bhatnagar Prize 84 • Firodia Award 2000 Padma Shri 2000 • Goyal Award.

Bhide, Vishnu Ganesh*

Elected: 1974
Specialization: Solid State Physics; Materials Science
Date and Place of Birth: 8 August 1925; Daryapur, Maharashtra
Parents: Ganesh Trimbak Bhide and Shantabai
Spouse and Children: Prabha; one *s*, one *d* (Anant, Vidula)
Last Address: Department of Physics, University of Poona, Pune 411 007
***Deceased:** 25 June 2006

Education: Univ. of Nagpur: BSc 45, MSc 47, PhD 53; London Univ.: PhD 55.

Career: College of Sc., Nagpur Univ.: Lecturer in Phys. 47–56; Inst. of Sc. Bombay: Prof. and Head 56–66; NPL, New Delhi: Dy Dir 66–73, Director-grade Sci. 75–82; SBI Univ. of Poona: SBI Prof. 82–84; Univ. of Poona: Vice-Chancellor 84–88; Inter-Univ. Consortium: Dir 89–90; UGC CSIR Interaction Programme: Co-ordinator 90–93.

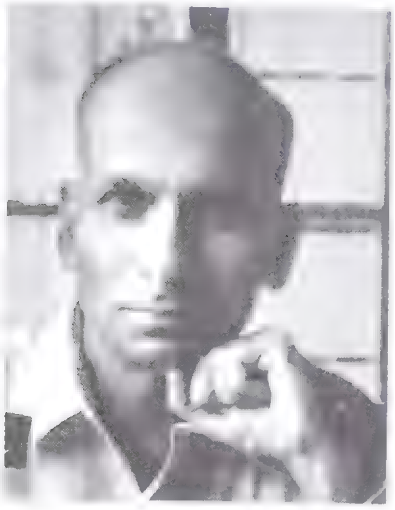
Scientific Work: Developed a new method based on multiple beam interference technique to delineate ferroelectric domains and to study domain dynamics. Worked on audio frequency and radio frequency electroluminescence in ferroelectrics to demonstrate domain switching and the existence of a very thin layer of low dielectric constant on the surface of ferroelectric $BaTiO_3$ crystals. Pioneered research work on Mössbauer spectroscopy in the country, using the Mossbauer spectrometer. Investigated a number of ferroelectrics, ferromagnetics and antiferromagnetics. Developed a method to evaluate the lifetime of nonequilibrium charge states of Ni, Co ions formed as a consequence of electron capture decay of Co_{57} in CoO, NiO and other lattices. Investigated high spin-low spin equilibria in a variety of rare earth cobaltites. Demonstrated that the localized electron collective electron transition occurs in $LaCoO_3$ at 1210 K. Studied the effect of chemical binding in large number of metal oxides and intermetallic compounds using X-ray spectroscopy, particularly the extended fine structure of absorption edges. Developed know-how for making liquid crystal displays. Developed a concept for structured selective coating for solar collectors.

Important Publications: **(1)** *Mössbauer effect and its applications* (1975) Tata McGraw Hill. **(2)** *Dielectrics and ferroelectrics* (1972) Thomson Press, New Delhi. **(3)** *Science, technology and education* (1988) Indian Inst. of Edn.

Memberships: Fellow: Royal Astronomical Soc. 56; INSA 68; MACS 72; NASI 92; Indian Cryogenic Council • President: Phys. Sec., Indian Sc. Congress 71; Physical Sc. Sec.,

Awards & Distinctions: C V Raman Award • M N Saha Memorial Award 78 • Padma Shri 92; Pres: MACS 86–96; Agharkar Res. Inst 92–96.

Bhimachar, Brahmananda Srinivasachar*



Elected: 1951
Specialization: Applied Zoology; Fisheries; Aquaculture
Date and Place of Birth: 7 July 1906; Mysore, Karnataka
Parents: Srinivasachar
Spouse and Children: Kamala; two *s*, one *d*
Last Address: Anchorage, Sarjapur Road, Koramangala, Bangalore 560 034, India
***Deceased:** 11 January 1979

Education: Calcutta Univ.: MSc 30, DSc 46.

Career: Govt of Mysore: Fisheries Offr 40–47; Central Marine Fisheries Res. Inst.: Sr Res. Offr 47–54; Central Inland Fisheries Res. Inst., Barrackpore: Dir 54–66.

Scientific Work: Responsible for effective organization of inland fisheries research in India and did extensive research on taxonomy, distribution, bionomics and fishery biology. Made significant contributions to the study of morphology of the skulls of Indian catfishes, correlation of feeding habits and the structure of brains of certain fishes and zoogeography of hill-stream fishes. Studied the effects of industrial effluents on fish life. The fish population studies of Malabar Coast as influenced by the seasonal fluctuations round the year was the first of its kind about fisheries wealth in terms of food fishes of the inshore areas. Guided in developing the technique of induced breeding of Indian major carps through hypophysation and the technique of composite fish culture, which has revolutionized freshwater aquaculture development in India. Organized development-oriented fisheries research in the country.

Memberships: Member: Zoological Soc. of Bengal • Fellow: INSA 48; Zoological Soc. of India.

Awards & Distinctions: INSA Chandrakala Hora Memorial Medal 65.

Bhisey, Rajani Avinash

Elected: 1996
Specialization: Environmental Carcinogenesis; Molecular Epidemiology of Cancer
Date and Place of Birth: 20 January 1941
Parents: Narayan Vishnu Athavale and Indumati
Spouse and Children: Avinash Narayan Bhisey; one *s*, one *d*
Address: 7, Yug Prabhat Co-operative, Housing Society, Sitaldevi Temple Road, Mahim, Mumbai 400 016
Tel. (022) 2446 7356 (R), Mobile: 98330 15834
email: rajanibhisey@yahoo.co.in

Education: Univ. of Bombay: BSc 60, MSc 65, PhD 74.

Career: Cancer Res. Inst.: Sci. Offr 74–2000; Head, Carcinogenesis Dn.

Scientific Work: For mechanistic studies on skin carcinogenesis, on a hairless mouse model termed 'Bare' highly sensitive to tumour initiation and promotion was developed. Keratinocytes selected for clonal expansion into a papilloma showed ultrastructural features of proliferative cells and altered keratin expression. Further experimental and human studies indicated that tumour promoting agents are causally associated with development of human adnexal neoplasms. Environmental carcinogenesis studies revealed mutagenic, skin and forestomach tumour promoting activities of smokeless tobacco products and pan masala. Biomonitoring studies helped identify high genotoxic and cancer risk caused by occupational tobacco exposure among tobacco processors. Similar studies in smokeless tobacco habitues showed that they incur elevated exposure to tobacco derived mutagens, and reactive oxygen species due to depletion of detoxifying enzymes. The resultant genotoxicity led to increased chromosomal damage in this high cancer risk group. The link between genetic polymorphism at GSTM1, CyP1A1 and CyP2D6 gene loci and cancer susceptibility due to tobacco habituation is being investigated presently.

Memberships: Fellow: INSA 98; Maharashtra Acad. of Sci.

Bhonsle, Rajaram Vishnu

Elected: 1982
Specialization: Solar Terrestrial Physics; Radio Astronomy
Date and Place of Birth: 12 November 1928; Sonali, Maharashtra
Parents: Vishnu Appaji Bhonsle and Janabhai
Spouse and Children: Vijaya; two *d*
Address: B/1, Mahagaokar Complex, Rajaram Road, Kolhapur 416 001, India
Tel. (0231) 252 2138 (R)
email: rvbhonsle@yahoo.co.in

Education: Univ. of Poona: BSc 50, MSc 54; Gujarat Univ.: PhD 61.

Career: PRL, Ahmedabad: Jr Res. Asst 54–57, Sr Res. Fellow 58–61. Assoc. Prof. 69–75, Prof. 75–87, Sr Prof. 87–88, Hon. Prof. 88–89; Shivaji Univ., Kolhapur: CSIR Emeritus Sci. 90–93, Hon. Prof. 89; National Res. Council, Canada: Postdoc Fellow 61–63; Stanford Univ., USA: Vis. Res. Assoc. 66–69.

Scientific Work: Established night airglow photometers at Mt Abu and Srinagar. Measured effect of solar flares and magnetic storms on ionospheric absorption. Developed spectrometry, polarimetry and interferometry for solar radio burst studies at meter wavelengths. Determined Faraday relation of the plane of polarization of solar bursts between the source in solar corona and earth. Discovered new microscopic spectral features in solar decametric spectra and explained their mechanism of generation. Carried out multifrequency studies of 16 February 1980 solar eclipse. Made satellite studies of ionosphere for total electron content and scintillation measurements. Measured ion densities in the plasma tail of comet P/Halley using IPS technique.

Memberships: Member: Intl Astronomical Union; Indian Astronomical Soc.; Intl Heliospheric Study Group.

Bhosle, Ushadevi Narendra

Elected: 2000
Position: Prof., TIFR, Mumbai
Specialization: Algebraic Geometry
Date and Place of Birth: 30 March, 1949; Dhule, Maharashtra
Parents: Wamanrao Chindhuji Patil and Susheela
Spouse and Children: Narendra Balramji Bhonsle; one *s*, one *d*
Address: School of Mathematics, Tata Institute of Fundamental Research Homi Bhabha Road,
Mumbai 400 005, India
Tel. (022) 2278 2612 (O), (022) 2280 4597 (R), Mobile: 99306 41136
email: usha@math.tifr.res.in

Education: Pune Univ.: BSc 69; Shivaji Univ.: MSc 71; TIFR, Bombay: PhD 80.

Career: TIFR: Res. Asst 71–74, Res. Assoc. 74–77, Res. Fellow 77–82, Fellow 82–91, Reader 91–95, Assoc. Prof. 95–98, Prof. 98–; Univ. of Liverpool, England: Vis. Prof. 89, 91, 97, 2004; Math Inst., Germany: Vis. Prof. 89; Univ. of Paris, France: Vis. Prof. 94; Univ. Autonoma, Mexico: Vis. Prof. 95; Univ. of Complutense, Madrid, Spain: Vis. Prof. 2003; ICTP, Trieste, Italy: Sr Assoc. 2008.

Scientific Work: One of the leading experts on the moduli spaces of vector bundles, *G*-bundles and parabolic bundles on curves as well as higher dimensional algebraic varieties. Earlier contributions to the explicit descriptions of moduli spaces of bundles on hyperelliptic curves were beautiful and led to many developments in the field. Equally impressive is the study of generalized parabolic bundles, which are very important and have found many applications. This, combined with work on bundles on singular curves, gives explicit descriptions of the moduli spaces of bundles and torsion-free sheaves on stable curves and their Picard groups. Constructed compactified moduli spaces of singular principal G-bundles on singular curves and higher dimensional singular varieties. Has generalized the celebrated Poincaré formula and Riemann singularity theorem on Riemann surfaces to nodal curves and applied them to prove interesting results in Brill–Noether theory and coherent systems on nodal curves.

Important Publications: **(1)** Classification of vector bundles of rank two on hyperelliptic curves (1976) *Invent Math.* **38**, 161–185. **(2)** Moduli of orthogonal and spin bundles over hyperelliptic curves (1984) *Composition Math.* **51**, 15–40. **(3)** Generalised parabolic bundles and applications to torsion-free sheaves on nodal curves (1992) *Arkiv Matematik* **30**, 2, 187–215. **(4)** Tensor fields and singular principal bundles (2004) *Intl. Math. Res. Notices* **57**, 3057–3077. **(5)** On the Poincaré formula and Riemann singularity theorem over nodal curves (2008) *Math. Ann.* **342**, 885–902.

Memberships: Fellow: INSA; NASI 2006.

Biswas, Anil Bhusan*

Elected: 1974
Specialization: Physical and Structural Chemistry; Chemistry; Physics of the Solid State Polymer Science
Date and Place of Birth: 12 January 1917; Dhaka, Bangaladesh
Spouse and Children: Anjali Guha; two *s* (Gautam and Pratim)
Last Address: Indian Institute of Technology, Bombay, India
***Deceased:** 23 October 1979

Education: Univ. of Dhaka: BSc 39, MSc 40; IISc, Bangalore: PhD 44.

Career: Univ. of Delhi, Dept of Chem.: Lecturer 45–51; California Inst. of Technol., USA: Res. Fellow 48–49; NCL, Pune, Physical Chem. Dn: Asst Dir and Head 51–67; IIT Bombay: Sr Chem. Prof. 67–79.

Scientific Work: Worked for over four decades in the areas of crystal and molecular structure determination by X-ray and neutron diffraction; surface science and catalysis; monolayer properties of long chain compounds on water surface; semiconductors; magnetic and ferromagnetic materials; and photo and radiation polymerization. Done pioneering work on monomolecular films on water surface which led to the discovery of a new series of superior water evaporation retardants. These have been found to minimize the loss of water stored in lakes and reservoirs by evaporation much effectively than the conventionally used cetyl and stearyl alcohols.

Memberships: Fellow: INSA 77.

Biswas, Birendra Bijoy

Elected: 1977
Specialization: Nucleic Acid Metabolism; Plant Biochemistry; Genetic Engineering
Date and Place of Birth: 1 March 1928; Baniachong, Bangladesh
Parents: Benode Behari Biswas and Suniti Bala
Spouse and Children: Susweta Sen; one *s*, one *d* (Jishnu Gupta, Parbati)
Address: CG-155, Salt Lake City, Kolkata 700 091, India
Tel. (033) 2334 8649 (R), Mobile: 94334 24609
email: bbjoy@cal2.vsnl.net.in

Education: Univ. of Calcutta: BSc Hons 49; MSc 51, PhD 58.

Career: BHU, Varanasi: Res. Asst 52–54; Univ. of Texas, USA 58–59; Univ. of Pittsburgh, USA 59–61, 66–67; Cold Spring Harbour Lab., USA 77: Postdoc Res.; Bose Inst., Calcutta, Dept of Chem.: Res. Asst 54–58, Lecturer 61–65, Reader 65–72, Prof. 72–85, Dir 85–90, CSIR Emeritus Sci. 90–93.

Scientific Work: Involved in discovery of RNA polymerase and its implications in transcription process; polyribonucleotide synthesis in chloroplasts; mechanism of Gram staining bacteria. Discovered several new enzymes involved in the novel metabolic cycle entailing myoinositol phosphates and their implication in Ca^{++} mobilization and signal transduction process particularly in plants; transformation and regeneration of the grain legume. *Vigna radiata* to obtain transgenic plant, using recombinant DNA technology and Ca^{++} homeostasis in *Entamoeba histolytica* and drug design.

Important Publications: **(1)** Chemical nature of nucleic acids in Cyanophyceae (1956) *Nature*, **177**, 95–96. **(2)** Enzymatic incorporation of nucleoside triphosphates into nuclear RNA (1962) *Biochem. Biophys Acta* **55**, 827–836. **(3)** RNA stimulated by indole acetic acid, (1972) *Nature New Biol.*, **240**, 111–113. **(4)** Purification and characterization of myoinositolhexaphosphate-ADP-phosphotransferase from *Phaseolus aureus* (1978) *Arch. Biochem. Biophys.*, **185**, 557–566. **(5)** Expression of the *Arabidopsis thaliana* 2s albumin gene 3 in *Saccharomyces cerevisiae* (1995) *Gene*, **153**, 175–178.

Memberships: Fellow: INSA 78.

Awards & Distinctions: S S Bhatnagar Prize 72 • Srinivasayya Memorial Award 74.

Biswas, Indranil

Elected: 2003
Position: Prof., TIFR, Mumbai
Specialization: Algebraic Geometry; Differential Geometry; Deformation Quantization
Date and Place of Birth: 19 October 1964; Calcutta, West Bengal
Parents: Birendranath Biswas and Pritikana Saha
Spouse and Children: Mousumi Saha; one *d*
Address: School of Mathematics, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2220 (O), (022) 2280 4832 (R)
email: indranil@math.tifr.res.in

Education: ISI Calcutta: BStat 86; ISI Delhi: MStat 88; TIFR: PhD 93.

Career: TIFR: Fellow 93–97, Reader 97–2000, Asst Prof. 2000–06, Prof. 2006–.

Scientific Work: Worked on following topics. Algebraic and differential geometric properties of moduli spaces of vector bundles, Higgs bundles, parabolic bundles, principal *G*-bundles, differential operators, quantization. Teichmüller space; projective structure; symplectic geometry, foliation.

Biswas, Samarendra Nath*

Elected: 1974
Specialization: Theoretical Physics
Date and Place of Birth: 1 May 1926; Alamdanga, Bangladesh
Parents: Laxmikanta Biswas and Prafulla Nalini
Spouse and Children: Sujatha; three *d*
Last Address: Ila Apartments, Flat No. B-6, B-7, Vasundhara Enclave, Bhagat Marg
New Delhi 110 096, India
***Deceased:** 3 January 2005

Education: Calcutta Univ.: MSc 48, DPhil 59; Adelaide Univ., Australia: PhD 58.

Career: TIFR, Bombay: Fellow 58–64; Delhi Univ., Dept of Phys.: Dean and Prof. 64–91; JNU, Delhi: Dean, School of Environmental Sci. 74–76.

Scientific Work: Worked on particle classification spectrum, and experimental consequences of particle interaction based on unitary symmetry and its relativistic generalization. Carried out dispersion relation studies on collision processes involving elementary particles based on unitarity and analyticity. Concentrated on geometrical phases of wave function in quantum mechanics and their application. Developed supersymmetric classical mechanics, which dominated the world of field theory. Studied extensively the role of parastatistics. Also studied in quantum groups and symmetry breaking by deformation.

Important Publications: **(1)** Radially symmetric solutions of Bethe-Salpeter equation (1956) *Nucl. Phys.*, **2** 177. **(2)** Covariant solutions of the Bethe-Salpeter equation (1957) *Prog. Theor. Phys.*, **18,** 121. **(3)** The symmetries of Bethe-Salpeter equation for the relativistic bound state problem (1967) *J. Math. Phys.*, **8**, 1109. **(4)** Completeness of states, shadow states, Heisenberg condition and poles of *s*-matrix (1970) *Nucl. Phys.*, **B60,** 259. **(5)** Berry's phase and its role in atomic and particle physics (1988) *Int. J. Phys.* **B62** 371.

Memberships: Sr. Assoc. Intl Centre for Theoretical Phys., Trieste 76–81 • Fellow: INSA 71; NASI

Biswas, Sukumar

Elected: 1976
Specialization: Cosmic Rays; Solar and Space Physics; High Energy Astrophysics
Date and Place of Birth: 1 July 1924; Jalpaiguri, West Bengal
Parents: Satyendra Prasad and Suhasini
Spouse and Children: Reba; one *s*,(Rana) one *d* (Noopur)
Address: 109, Roy Mansion, Aram Society Road, Vakola, Santacruz, Mumbai 400 055, India
Tel. (0), (022) 2667 2426, (022) 2667 2485 (R), Mobile: 98206 99393
email: biswas@mailhost.tifr.res.in

Education: Calcutta Univ.: BSc Hons 44, MSc 46, DPhil 50; Melbourne Univ.: PhD 52.

Career: Calcutta Univ., Inst. of Nuclear Phys.: Res. Assoc. 47–50; Univ. of Melbourne, Australia, Phys. Dept: Res. Fellow 50–52; TIFR, Bombay: Res. Fellow 52–56, Fellow 56–63, Reader 63–65, Assoc. Prof. 65–69, Prof. 69–85, Sr Prof. 85–89, Emeritus Prof. 89–92; Univ. of Minnesota, Minneapolis: Res. Assoc. 59–61; NASA Goddard Space Flight Center, Greenbelt 61–63, Maryland, USA: Sr Postdoc, National Res. Centre Res. Assoc. 61–63, 72–74.

Scientific Work: Measured the fission cross-section of U^{235} for thermal neutrons in 1949. Made one of the first measurements of the degree of inelasticity in high energy proton–proton collisions. Discovered a new method of mass measurements, called constant Sagitta method and using this method made one of the first correct mass determination of *k*-mesons. Made the first direct measurements of the abundances of heavy elements in the sun from the rocket-borne studies of solar cosmic rays in large solar flares. Determined from helium and heavy element studies, the residual solar modulation at solar minimum and the energy dependent path lengths of cosmic rays in interstellar medium. Discovery of anomalous cosmic rays in earth space in the Skylab III mission experiment in 1974 and showed for the first time that these heavy ions should be partially or fully ionized. Designed and fabricated the first Indian experiment, *Anuradha* in the Spacelab 3 of NASA successfully and this spectacular achievement yielded several strikingly new findings.

Memberships: Member: Intl Astronomical Union • Fellow: INSA 80; NASI 89.

Awards & Distinctions: UNESCO Fellowship Award 50 • NASA Public Service Group Achievement Award as Principal Investigator of Spacelab-3 Experiment 86 • NASA-NRC Award 61 and 72 • C V Raman Award 84 • Intl Acad. of Astronautics: Academician 98.

Bor, Norman Loftus*

Elected: 1942
Specialization: Asiatic Grasses
Date and Place of Birth: 2 May 1893; Tramore, Ireland
Parents: Edward Norman Cavendish and Mabel
Spouse: Eleanor
Last Address: Forest Research Institute, Dehra Dun, India
***Deceased:** 22 December 1972

Education: Univ. of Edinburgh: BA 21, DSc 30; Univ. of Dublin: ScD 48.

Career: Indian Army: Second Lieutenant 1914, Lieutenant 16, Captain 17–19; Indian Forest Service: Political Offr Divisional Forest Offr 31–34; Dy Commissioner of Forests in Naga Hills 35; Forest Botanist and Silviculturist at Shillong 36–37; Forest Res. Inst., Dehra Dun: Chief Administrator; Burma Refugee Organization, Shillong: Dir 42; Assam Relief Measures: Dir 44–45; Conservator of Forests 45–46; Royal Botanic Gardens, Kew: Asst Dir 48–59.

Scientific Work: Engaged in selecting forests for felling and in the preparation of plants for their regeneration. Interested in the vegetation of the forests and their natural history in general. Prepared an extensive collection of Assamese grasses. Revised the genera of the Indian grasses and monographed several of the taxonomically difficult genera. Studied the flora of Cyprus and Iraq.

Memberships: Fellow: INSA 41

Awards & Distinctions: Paul Johannes Bruhl Medal, Royal Asiatic Soc. of Bengal 45 • OBE 57 • Linnean Soc. of London Gold Medal 62.

Borges, Renee Maria

Elected: 2009
Position: Assoc. Prof., IISc, Bangalore
Specialization: Evolutionary Biology and Behavioural Ecology; Focussing on Species Interactions; Plant–Animal Interactions
Parents: Ernest Joseph and Gracie
Spouse: Ulhas Rane
Date and Place of Birth: 25 February 1959; Bombay
Address: Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 2972, (080) 2293 3103 (O), (080) 2341 7366 (R)
email: renee@ces.iisc.ernet.in

Education: St. Xavier's College, Bombay: BSc 79, Univ. of Bombay: MSc, Animal Physiology 82, Univ. of Miami, Florida: PhD, Evolutionary Ecology 89.

Career: Wildlife Inst., Dehradun: Adjunct Faculty 90–98; Bombay Natural History Soc.: Dy Dir (Res) 92–95; IISc, Bangalore: Asst Prof. 97–2005, Assoc. Prof. 2005–.

Scientific Work: Principal current interest is the evolution of the interactions between species, especially those involving plants and animals. Studying the evolution of the interactions between ants and plants using an unspecialized leguminous ant-plant *Humboldtia brunonis* that occurs in the Western Ghats. Examining trophic interactions between ants and plants using stable isotope analysis. Studying the conditions that are suitable for the development of a stable mutualism between ants and plants by examining the mechanisms employed by plants and ants to assess the benefits or costs of potential partners. Also studied a fascinating nursery-pollination system that is about 60 million years old: the relationship between figs and fig wasps. In this system, the pollinating wasps are bred within the fig syconia where they also pollinate flowers and produce seeds. Besides wasps, ants, birds, bats and figs also interact with nematodes that use the fig wasps as vectors to move from one fig to another. The chemical interactions between all these players in the fantastic ecological and evolutionary theatre that is constituted by the fig syconium are being studied. Discovered the world's first nocturnal bee *Xylocopa tranquebarica* that can fly at starlight and that can also see colour at starlight and moonlight levels. Now assessing how these nocturnal bees share resources with diurnal bee species within the Bhimashankar Wildlife Sanctuary where there are not many flower species that bloom at night. In this fascinating field of visual ecology showed that crab spiders can perceive ultraviolet light and use this perception to exploit the ultraviolet sensitivity of their honeybee prey that are attracted to the ultraviolet reflectance of the spider abdomens. Also studied the chemical and visual basis of the mimicry between ants and spiders, a group of ant-mimicking jumping spiders that employ chemical and visual signalling.

Important Publications: **(1)** Perception of ultraviolet light by crab spiders and its role in selection of hunting sites (2009) *J. Comparative Physiol. A* **195**, 409–417. **(2)** Plasticity comparisons between plants and animals: Concepts and mechanisms (2008) *Plant Signalling and Behaviour* **3**, 367–375. **(3)** A novel mutualism between an ant-plant and its resident pollinator (2008) *Naturwissenschaften* **95**, 61–65. **(4)** The chemical ecology of seed dispersal in monoecious and dioecious figs (2008) *Functional Ecology* **22**, 484–493. **(5)** Male ant-mimicking salticid spiders discriminate between retreat silks of sympatric females: Implications for pre-mating reproductive isolation. *J. Insect Behaviour* **20**, 389–402.

Awards & Distinctions: Outstanding Teaching Asst of College of Arts and Sci., Univ. of Miami 87; Rotary Club Bangalore M Sunderlal Baghai Gold Medal 2005.

Borkar, Vivek Shripad

Elected: 1993
Position: Sr Prof., TIFR, Mumbai
Specialization: Stochastic Control Theory; Applied Probability
Date and Place of Birth: 19 September 1954; Mumbai
Parents: Shripad Shantaram Borkar and Sarita
Spouse and Children: Shubhangi; one s
Address: Technology & Computer Science Faculty, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005
Tel. (022) 2278 2293 (O), (022) 2280 4614 (R)email: borkar@tifr.res.in

Education: IIT Bombay: BTech 76; Case Western Reserve Univ.: MS 77; Univ. of California, Berkeley: PhD 80.

Career: Technische Hogeschool Twente, Holland: Vis. Sci. 80–81; TIFR, Bangalore: School of Mathematics Fellow 81–89; IISc, Bangalore, Dept of Electrical Engg/Dept of Computer Sci. and Automation: Asst Prof. 89–92, Assoc. Prof. 92–99; TIFR, Mumbai, School of Tech. and Computer Sc.: Prof. 99–2006, Sr Prof. 2006.

Scientific Work: Worked extensively in diverse aspects of stochastic optimal control processes. Major contributions include fundamental contributions to the ergodic control problem and control under partial observations, a new convex analytic paradigm based on occupation measure for handling several nonclassical problems, convergence analysis of various adaptive control schemes. Also worked on stochastic recursive algorithms and their applications to learning systems and resource allocation problems in communications and stochastic games.

Important Publications: **(1)** *Optimal control of diffusion processes* (1989) Longmans Harlow, England. **(2)** *Topics in controlled Markov chains* (1991) Longmans, England. **(3)** *Probability theory: An advanced course* (1995) Springer Verlag, New York. **(4)** Stochastic approximation: *A dynamical systems viewpoint* (2008) Hindustan Publ. Co., New Delhi, and Cambridge Univ. Press. **(5)** Singular perturbations in ergodic control of diffusions (2007) *SIAM J. Control Optim.* **46**, 1562–1577.

Memberships: Am. Math. Soc.; Op. Research Soc. of India; IEEE; Bernoulli Soc.; INFORMS.

Awards & Distinctions: IEEE Best Transactions Paper Award 82 • S S Bhatnagar Prize 92.

Bose, Arup

Elected: 2006
Position: Prof., ISI, Kolkata
Specialization: Probability; Statistics
Date and Place of Birth: 1 April 1959; Kolkata, West Bengal
Parents: Satyendra Nath Bose and Uma Basu
Spouse and Children: Mausumi; two *d*
Address: Statistics & Mathematics Unit, Indian Statistical Institute, 203 B T Road,
Kolkata 700 108, India
Tel. (033) 2575 3409 (O), (033) 2429 8922 (R), Mobile: 98304 96250
email: abose@isical.ac.in, bosearu@gmail.com
URL: http://www.isical.ac.in/~abose

Education: ISI: BStat 79, MStat 80, PhD 87.

Career: Purdue Univ.: Asst Prof. 87–90; ISI: Assoc. Prof. 91–95, Prof. 95–.

Scientific Work: Research contributions are primarily in the areas of resampling, sequential analysis, *U* statistics, *M* estimates, selection problems, generalized confidence intervals, record values, extreme order statistics, Urn models and large dimensional random matrices. Often work cannot be uniquely categorized into one of the above areas, hence uses tools from one area in a novel way to solve problems in another. Some of the work have had major influences and others have provided deeper and newer insights into existing methods.

Important Publications: **(1)** Another look at the moment method for large dimensional random matrices (2008) *Electron. J. Probab.* **13**, 588–628. **(2)** Generalised bootstrap for estimating equations (2005) *Ann. Stat.* **33**, 1, 414–436. **(3)** Bahadur representation of M_m estimates (1998). *Ann. Stat.* **26**, 2, 771–777. **(4)** Accuracy of the bootstrap approximation (1991). *Probab. Theory Rel.* **90**, 301–316. **(5)** Edgeworth correction by bootstrap in autoregressions (1988b) *Ann. Statis.* **16**, 4, 1709–1722.

Memberships: Inst. Math. Stat., USA; Amer. Stat. Assn Am. Math. Soc.; Intl Indian Stat. Assn; Indian Soc. for Prob. and Stat.

Awards & Distinctions: C R Rao National Award in Statistics • S S Bhatnagar Prize 2004 • National Award in Statistics 2003.

Bose, Dwarka Nath

Elected: 1989
Specialization: Semiconductors; Ferroelectrics and Fast Ion Conductors; Optoelectronics
Date and Place of Birth: 25 June 1938; Calcutta
Parents: Sunil C Bose and Lalita
Children: one *d*
Address: 7/2, Short Street, Kolkata 700 017, India
Tel. (033) 2350 1993 (O), (033) 2287 5679 (R)
email: dwarkabose322@gmail.com

Education: Univ. of Calcutta: BSc Hons 56, MSc 59; Reading Univ, UK: PhD 65.

Career: IIT Kharagpur: Assoc. Lecturer 60–61, Prof. 77–98, Head, Materials Sci. Centre, 82–85, Dean (Faculty of Planning) 89–92, Sci. Adviser 98–2001; Reading Univ.: ICI: Tech. Scholar 61–65; Pennsylvania State Univ., USA, Materials Res. Lab.: Res. Assoc. 66–70; IISc, Bangalore, E&ECE Dept: Asst Prof., Assoc. Prof. 70–77; Calcutta Univ.: Emeritus Sci. 2002–08.

Scientific Work: Single crystal growth of technologically important semiconductors: InP, CdTe, ZnTe, CaTe. Preparation and purification of silicon from rice husk for solar energy applications. Liquid phase epitaxy of InP, InGaAs; growth of InP/InCaAs quantum wells. Laser deposition of CdTe, ZnTe, BN, AlN and TiN. Plasma deposition of Si_3N_4 for MIS applications. PEC solar cell and study of surface modification of CdTe-InP and InGaAs. Study of Ag and Li fast ion conductors and fabrication of rechargeable Li Cells. High pressure studies of semiconductors. Raman and SIMS characterization, fabrication of InGaAs and InP photodetectors and LEDs.

Important Publications: **(1)** *Materially yours* (1995) CSIR Golden Jubilee Series, Pub. & Inform. Directorate, New Delhi. **(2)** *Semiconductor materials,* Science and Technology, New Age International (in press). **(3)** Thin film amorphous semiconductor microwave switches (1979) *Thin Solid Films* **57**, 39–44. **(4)** Large grain polycrystalline silicon from rice husk (1982) *Sol. Energ. Mater.* **7**, 319–321. **(5)** Resistivity maxima in lithium fast ion conductors at high pressure (1984) *Phys. Rev. Lett.* **53**, 1368–1371.

Memberships: Member: Am. Phys. Soc.; APAM • Founder Member: MRSI • Fellow: Indian Physical Soc.; IETE; Solar Energy Soc. of India; Semiconductor Soc. of India.

Awards & Distinctions: Ram Lal Wadhwa Gold Medal 84 • IIT Kharagpur Silver Jubilee Res. Award 86.

Bose, Indrani

Elected: 2000
Position: Sr Prof., Bose Inst., Kolkata
Specialisation: Theoretical Condensed Matter Physics; Statistical Physics; Biological Physics and Systems Biology
Date and Place of Birth: 15 August 1951; Allahabad, Uttar Pradesh
Parents: Sunil Kumar Bose and Reba
Address: Department of Physics, Bose Institute, 93/1, APC Road, Kolkata 700 009, India
Tel. (033) 2303 1184 (O), (033) 2352 3723 (R), Mobile: 98306 06901
email: indrani@bosemain.boseinst.ac.in

Education: Calcutta Univ.: BSc 72, MSc 74, PhD 81.

Career: IACS Kolkata: Postdoc Fellow 81–83, Res. Assoc. 83–86; Bose Inst, Kolkata: Sr Lecturer 87–92, Reader 92–98, Prof. 98–2005, Sr Prof. 2005–.

Scientific Work: In the areas of magnetism/strongly correlated systems/exactly-solvable models, significant contribution has been to construct models for which several exact results can be derived. Some of these are: Exact solutions of the three-magnon bound state equation in dimension $D = 1$, a spin-1/2 antiferromagnetic (AFM) model with Neel states as the exact ground states, a frustrated spin-1/2 model in 2d for which the columnar dimer states are the exact ground states and a two-leg t-J ladder model for which several exact results can be derived for the ladder doped with one and two holes. In the area of quantum information and communication, the entanglement properties of simple molecular magnets and the signatures of quantum phase transitions in entanglement and fidelity measures have been identified. In the area of biological physics/systems biology, the origins and consequences of stochasticity in gene expression have been investigated.

Important Publications: **(1)** Hole motion in a coupled-chain model: Some exact results (1993) *Phys. Rev. B* **48**, 10653. **(2)** Macroscopic entanglement jumps in model spin systems (2002) *Phys. Rev. A* **66**, 062320. **(3)** Graded and binary responses in stochastic gene expression (2004) *Phys. Biol.* **1**, 197. **(4)** Noise characteristics of feed forward loops (2005) *Phys. Biol.* **2**, 36. **(5)** Thermal entanglement properties of small spin clusters (2005), *Phys. Rev. A* **72**, 022314.

Memberships: Life membership: Indian Physical Soc.; Indian Science News Assn; Indian Assn of Phys. Teachers; Indian Science Congress Assn • Fellow: NASI 2003; West Bengal Acad. of Sci. 2008.

Awards & Distinctions: Stree Shakti Science Samman 2000 • Regular Assoc. of the Intl Centre for Theoretical Physics, Trieste, Italy 96–2001.

Bose, Mahendra Nath

Elected: 1982
Specialization: Palaeobotany; Palynology
Date and Place of Birth: 3 March 1925; Jainagar-Mojilpore, West Bengal
Parents: Satyendra Nath Bose and Kalyani
Spouse and Children: Smritikona; one *s*, two *d*
Address: 1947, Sector 4, Gurgaon 122 001, India
Tel. (0124) 232 7194 (R), Mobile: 98715 54152

Education: Lucknow Univ.: MSc 47, PhD 52.

Career: Birbal Sahni Inst. of Palaeobotany, Lucknow: Lecturer 49–56, Reader 56–61, Asst Dir 61–77, Dir 80–85; Univ. of OSLO Geology Inst.: Vis. Sci. 86–90.

Scientific Work: Major contribution has been on the mesozoic palaeobotany of India and palaeozoic and mesozoic palaeobotany of Zaire. Studies on the fossil flora of Zaire led to a revision of the classification of the Lukuga group. Work on mesozoic flora of India coupled with palynological data has shed further light on mesozoic stratigraphy of India. Worked on the lower cretaceous plants of Arctic region. Made significant contributions on fossil clitellate cocoons and Sciadopitys-like leaves. Monographs of Indian species of *Ptlophyllum, Otozamites, Weltrichia, Dictyozamites* and mesozoic flora of kachchh.

Memberships: Member: Norwegian Acad. of Sci. and Letters • Fellow: Palaeobotanical Soc.; Hon. Corr. Member: Belgian Royal Acad. Sci.

Awards & Distinctions: Ruchi Ram Sahni Research Prize 52 • Palaeobotanical Soc. Intl Medal 98.

Bose, Mihir Kumar

Elected: 1981
Position: CSIR Emeritus Scientist
Specialization: Igneous Petrology; Mineralogy; Geochemistry
Date and Place of Birth: 1 September 1933; Calcutta
Parents: Durgapada Bose and Subarna Prova
Spouse and Children: Sumita; one *s*
Address: BD 393, Sector 1, Salt Lake City, Kolkata 700 064
Tel. (033) 2219 2636 (O) (033) 2334 9002 (R)

Education: Calcutta Univ.: BSc 53, MSc 55, PhD 65.

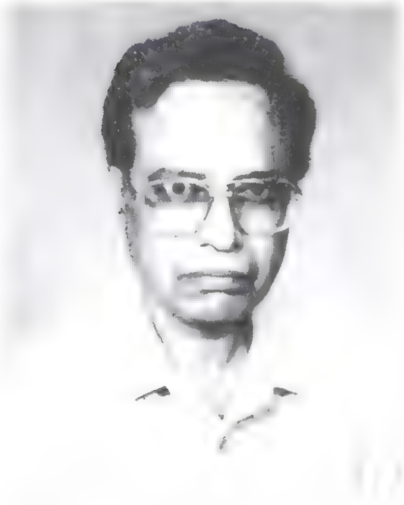
Career: Presidency College, Calcutta, Dept of Geology: Lecturer, Asst Prof., Reader 56; Univ. of Oslo, Norway: Post Doc Fellow 66–67, CSIR Emeritus Sci. 93–

Scientific Work: Research marks a turning point in the trend and outlook in the studies of Indian igneous rocks, leading to a deeper understanding of the history of magmatism in India. Integrated detailed investigations on structural geometry, mineralogy and geochemistry of some major igneous emplacements of India. Other areas of research are alkaline suites of India, anorthosite emplacements and high-pressure granulites of the Eastern Ghats belt, Deccan volcanism, and evolution of the proterozoic Singhbhum basin.

Memberships: Fellow: GSI; INSA 80.

Awards & Distinctions: National Mineral Award 72 • S S Bhatnagar Prize 76 • P N Bose Memorial Medal, Asiatic Soc. 2006.

Bose, Sujit Kumar



Elected: 1990
Specialization: Applied Mathematics; Solid Mechanics; Fluid Mechanics and Sediment Transport
Date and Place of Birth: 10 October 1938; Udaipur, Rajasthan
Parents: Satish Chandra Bose and Chabala
Spouse and Children: Kamala; one *s*, one *d* (Robi, Sophi)
Address: BE-188, Salt Lake City, Kolkata 700 064, India
Tel. (033) 2359 8204 (R), Mobile: 94338 79408
email: sujitkbose@yahoo.com

Education: Calcutta Univ.: BSc Hon 57, MSc 59, DSc 71.

Career: West Bengal Educational Service: Lecturer 60–65, Asst Prof. 65–75; Univ. of California, USA: Postdoc Res. Engineer 72–74; NIT, Durgapur: Prof. 75–93; S N Bose National Centre for Basic Sci., Calcutta: Prof. 93–99.

Scientific Work: In geophysics mathematical wave propagation theories for several guided waves, e.g. T, L_g, R_g, microseisms and G waves as also theories of some other seismic phenomena e.g. v_p/v_s ratio; in soil-structure interaction, exact treatment of vibration of wall and column on continuum elastic foundation; in vibration of foundations, from exact treatment of circular surface foundation, piles and pile groups, formulae for dynamic elastic stiffnesses obtained; in composite materials, exact micromechanical wave propagation theories in random composites leading to formulae for dynamic elastic moduli; in NDE of materials, theory of ultrasonic diffraction by curved cracks proposed; in hydraulics, mathematically modelled the three-dimensionally separated flow in clear water scour around a circular bridge pier, and obtained the equations of motion of turbulent curvilinear open channel flows; in sediment transport propounded a mathematical theory of dune and anti dune.

Important Publications: **(1)** Notes on wave theories for the propagation of T, Lg, Rg, G waves and microseisms from storms over deep sea (1970) *Zeischrift fiir Geophysik* **36**, 192–204. **(2)** Dynamic elastic moduli of a suspension of imperfectly bonded spheres *Proc. Cambridge Philos. Soc.* **76**, 587–600. **(3)** H_∞ energy estimate of boundary controlled vibrating hybrid structure subject to uncertain forces (2003) *ASCE J. Aerospace Engineering* **16**, 443–449. **(4)** Clear water scour at circular piers: a model (1995) *ASCE J. Hydraulic Engineering* **121**, 869–875. **(5)** Reynolds averaged theory of turbulent shear flows over undulating beds and formation of sand waves (2009) *Phys. Rev. E* **80**, 036304.

Memberships: Member: Soc. for Industrial & Applied Mathematics (SIAM), USA; Am. Math. Soc. USA.

Awards & Distinctions: Nomination for Kyoto Prize in mathematical sciences, Inamori Foundation, Japan 2006 and 2010.

Brahm Prakash*

Elected: 1972
Specialization: Chemistry; Metallurgy
Date and Place of Birth: 21 August 1912; Lahore, Pakistan
Parents: Jodha Ram Sekhri and Khem Kaur
Spouse and Children: Rajeshwari; one *s*, two *d*
Last Address: Jupiter Apartments, Cuffe Parade, Bombay 400 005, India
***Deceased:** 3 January 1984

Education: Panjab Univ., Lahore: BSc Hons 32, MSc 34, PhD 42; MIT, USA: ScD 48.

Career: IISc, Bangalore, Dept of Metallurgy: Prof. and Head 51–57; BARC, Metallurgy Group: Dir 57–72; Uranium Corporation of India, Jaduguda: Chmn and Nuclear Fuel Complex Project Dir; Vikram Sarabhai Space Centre, Trivandrum: Dir 72–79.

Scientific Work: In nuclear engineering, initiated project work on the extraction of pure zirconium for nuclear application. Established the radio-metallurgical laboratory for the development of plutonium metallurgy, large scale production of nuclear grade zirconium metal components, and fabrication of a variety of fuel elements for research and power reactors at the Atomic Fuels Division, Bombay and the Nuclear Fuel Complex, Hyderabad. Also played a crucial role in deciding the appropriate product-mix for the superalloy plant, MIDHANI at Hyderabad to include the production of maraging steels and titanium alloys. Carried out beneficiation of lead-zinc ore from Zawar mining, bricquetting of beryl dust, separation of hafnium from zirconium by vapour phase dechlorination, and electro-pyrometallurgical production of zirconium. Guided Indian metallurgists to develop the know-how for the extraction and fabrication of a variety of reactive, refractory and radio-active metals. Established radio-metallurgical laboratory for the handling of plutonium, with provision for plutonium development, large scale production of nuclear grade zirconium sponge and metallic fuel element fabrication. Guidance led to the development of the *Aryabhata* satellite and the launch vehicle SLV-3.

Memberships: Member: American Inst. of Mining; Metallurgical and Petroleum Engineers; First UN Conference in Geneva on Peaceful Uses of Nuclear Energy • Fellow: INSA 69.

Awards & Distinctions: Padma Shri 61 • S S Bhatnagar Award 63 • Padma Bhushan 68 • Vasvik Award 76 • INSA Bhatnagar Memorial Award 79 • IIM Bralco Medal 80.

Brahmachari, Samir Kumar

Elected: 1991
Position: Dir. Gen., CSIR; Secretary to Govt India, DSIR
Specialization: Functional Genetics; Genome Informatics
Date and Place of Birth: 1 January 1952; Calcutta
Parents: Amritalal Brahmachari and Shanti
Spouse and Children: Vani; one *s*, one *d*
Address: Council of Scientific & Industrial Research
Anusandhan Bhavan, 2, Rafi Ahmed Kidwai Marg, New Delhi 110 001, India
Tel. (011) 2371 0472, (011) 2371 7053 (O)
email: dgcsir@csir.res.in, dg@csir.res.in

Education: Calcutta Univ.: BSc 72, MSc 74; IISc, Bangalore: PhD 78.

Career: Inst. de Recherche en Biologie Moleculaire CNRS, Univ. of Paris: Postdoc Res. Fellow 78–79; Memorial Univ. of Newfoundland, Canada, Dept of Biochem.: Vis. Sci. 79; IISc, Bangalore, Molecular Biophys. Unit: Res. Assoc. 79–81, Lecturer 81–86, Asst Prof. 86–92, Assoc. Prof. 92–97, Prof. 97–2001; Max Planck Inst. Biophysical Chemistry, Germany: Vis. Prof. 97; Inst. of Genomics and Integrative Biology, CSIR, New Delhi: Dir 97–2007; Dir General 2007–.

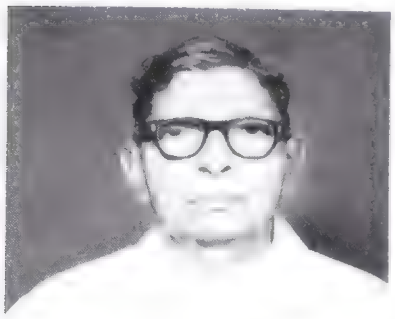
Scientific Work: Demonstrated structural-flexibility of DNA and role of repetitive sequences in DNA transactions much before the discovery of repeats association with genetic disorders. Pioneered functional genomics initiative in India. Used a combination of structural biology, computational genomics and population-based polymorphism-scanning, to provide a novel structural framework to elucidate etiology of neurological disorders. Demonstrated association of synaptogyrin-1 & MLC1 genes with schizophrenia and bipolar disorder and identified several SNPs/other markers associated with neurological disorders. Leads the Indian Genome Variation Consortium, which created a national resource: the genetic profile of Indians by developing a database of over 1000 genes related to their disease/drug responses. Finding that human miRNA can target critical genes in HIV, thus preventing HIV proliferation, is extremely significant. Spearheaded the Open Source Drug Discovery (OSDD) project and the pharmacogenomics for affordable health programme in India, with global participation.

Important Publications: **(1)** The Indian genome variation consortium. Genetic landscape of the people of India: A canvas for disease gene exploration (2008). *J. Genet.* **87**, 1, **(2)** Targets for human encoded microRNAs in HIV genes (2005) *Biochem. Biophys. Res. Commun.* **7**; **337**, 4, 1214–1218. **(3)** Conformational analysis of invariant peptide sequences in bacterial genomes (2005) *J. Mol. Biol.* **345**, 5, 937–955. **(4)** Molecular analysis of autosomal dominant hereditary ataxias in the Indian population: High frequency of SCA2 and evidence for a common founder mutation (2000) *Human Genetics* **106**, 179–187. **(5)** Structure and stability of human telomeric sequence (1994) *J. Biol. Chem.* **269**, 21858.

Memberships: Council Member: Federation of Asian & Oceanic Biochemistry and Molecular Biology • Member: HUGO Council; Planning Group, Human Variome Project • Advisory Board Member: Archon-X Prize for Genomics.

Awards & Distinctions: INSA Young Scientist Medal 79 • Kani Medal 81 • Cama Memorial Award • S S Bhatnagar Award • FICCI Award • Millennium Medal • Ranbaxy Research Award • Goyal Prize • B K Bachhawat Oration Lecture Award • Prof. P K Bose Memorial Award • Dr B R Ambedkar Centenary Award • Jagadis Chandra Bose Medal • H K Firodia Award • Vasvik Award • R A Mashelkar Medal • Dhirubhai Ambani Oration Award • IISc Distinguished Alumni • DSc (hc) Vidyasagar Univ.

Brahmayya Sastry, Podila*



Elected: 1978
Specialization: Physiology, Neurophysiology, Placental Physiology, Filato's Biogenic Stimulators, Tissue Therapy
Date and Place of Birth: 24 May 1913; Kakinada, Andhra Pradesh
Parents: Seetharamiah and Ramalaxmi
Spouse: Bhaskara Jogamba
Last Address: Sitarama Nilayam, Plot No 9, Doctors Co-op Housing Cology, (PEDA Waltair), Visakhapatnam, Andhra Pradesh 530 017, India
***Deceased:** 28 May 1993

Education: Andhra Medical College, Andhra Univ.: MBBS 38, MSc 52; McGill Univ., Montreal, Canada: PhD 56.

Career: Andhra Medical College: Teacher 39–51, Prof. 51–64, Vice-Principal, Principal 64–68; ICMR Emeritus Medical Sci. 68–73; UGC Teacher Sci. 73–85.

Scientific Work: Outstanding original research interests were in vitamin C metabolism in health and disease; acetylcholine transmission in brain, ganglia, nerves and neuromuscular systems, studies on experimental focal cortical seizures in cats, choline and acetylcholine fluxes in the brain of rats; acetylcholine activity in human placentas in health and disease; experimental and clinical studies on the bioaccelerator effects of Filatov's biogenic stimulators in placental extract.

Memberships: Fellow: Andhra Pradesh Acad. of Sci.; NAMS; Indian Assn of Med. Sci.

Awards & Distinctions: P Gurumoorthy Memorial Orational Gold Medal 73 • Glaxo Oration Award 77 • A Perisastry Memorial Oration Gold Medal 79 • Indian Science Congress Platinum Jubilee Lecture Award 88 • S L Bhatia Memorial Oration Award 88.

Budhani, Ramesh Chandra

Elected: 2005
Position: Prof., IIT Kanpur
Specialization: Experimental Condensed Matter Physics; Superconductivity; Magnetism
Date and Place of Birth: 3 February 1955; Ranikhet, Uttaranchal
Parents: Ganga Datt Budhani and Rabati
Spouse and Children: Shruti, one *s*, one *d* (Raman, Pratha)
Adddress: Department of Physics, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7185 (O), (0512) 259 8385 (R)
email: rcb@iitk.ac.in; URL: http://home.iitk.ac.in/~cmlds

Education: Kumaun Univ.: BSc 74; Allahabad Univ.: MSc 76; IIT Delhi: PhD 82.

Career: IIT Delhi: Post Doc Fellow 82–83; Univ. of California: Postdoc 83–85, Res. Engineer 85–87, Brookhaven National Lab: Asst Sci. 88–90, Assoc. Sci. 90–93, Sci. 93–94; IIT Kanpur: Assoc. Prof. 94–97, Prof. 97–; Univ. of Maryland: Vis. Prof. 2000–01; ESPCI Paris, France: Joliot Fellow 2008.

Scientific Work: Coexistence of superconductivity and magnetism in layered structures; superconducting pair formation at high temperatures, tunnelling and order parameter symmetry. Electronic phase separation and nonlinear dynamics of the charge ordered state in thin films of transition metal oxides. (manganites, nickelates, cuprates). Interlayer exchange coupling and magneto-transport in artificial superlattices of transition metal oxides; spintronics, spin polarized tunneling. Non-equilibrium photo-effects in doped oxides.

Important Publications: **(1)** Giant quenching and mobile carrier assisted recovery of ordered moments in $La_{0.7}Ca_{0.3}MnO_3/Er_{0.7}Sr_{0.3}MnO_3$ and $La_{0.7}Ca_{0.3}MnO_3/LaNiO_3$ superlattices (2005) *Phys. Rev.* **B71**, 144415. **(2)** Current switching effects induced by electric and magnetic fields in Sr-subsituted in PrCaMnO films (2000) *Phys. Rev.* **B62**, 13868. **(3)** Raman, infrared and X-ray diffraction study of phase stability in LaBaMnO (1999) *J. Appl. Phys.* **85**, 3124. **(4)** Direct observation of columnar defects and magnetic flux lines in high temperature $Bi_2Sr_2CaCu_2O_8$ superconductors (1994) *Science* **265**, 1552. **(5)** Columnar defect-indiced resistivity minima and Bose glass scaling of linear dissipation in $Tl_2Ba_2Ca_1Cu_2O_8$ epitaxial films (1994) *Phys. Rev. Lett.* **72**, 566.

Memberships: Fellow: NASI 2005; INSA 2009; American Physical Soc. 2004; Materials Res. Soc.

Awards & Distinctions: MRSI Medal 2004.

Burley, G W*

Elected: 1935
Last Address: V J Technical Institute, Bombay, India

Education: Univ. of London: DSc.

Career: V J Tech. Inst., Bombay: Principal & Secretary.

Scientific Work: Studied the cutting power of lathe turning tools and the temperatures and heat quantities involved in cutting tool operations. Wrote books on machine tool testing and toothed gear wheel cutting.

Memberships: Member: London Mechanical Engineers; American Mechanical Engineers; London Royal Soc. of Teachers.

Burma, Debi Prosad*

Elected: 1976
Specialization: Biochemistry; Molecular Biology
Date and Place of Birth: 1 February 1925; Burdwan, West Bengal
Parents: Pitabas Burma and Jamuna Devi
Spouse and Children: Maharani Chakravorty; two s
Last Address: Molecular Biology Unit, Institute of Medical Sciences, Banaras Hindu University, Varanasi 221 005, India
***Deceased:** 4 February 2005

Education: Calcutta Univ.: BSc Hons 45, MSc 47, DPhil 52.

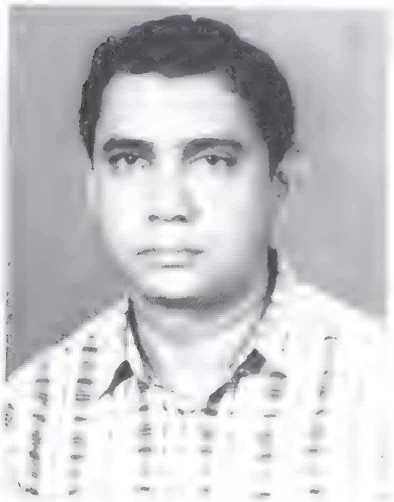
Career: Vidyasagar College, Calcutta: Lecturer 48–49; Bose Inst., Calcutta: Res. Asst 49–54, Res. Fellow 54–60; National Res. Council Lab., Canada: NCRC Fellow 54–55; Univ. of Wisconsin, USA: Postdoc Fellow 55–56; National Inst. of Arthritis and Metabolic Diseases, USA: Jane Coffin Child's Memorial Fellow 56–57; New York Univ., USA School of Medicine: Res. Fellow 60–61; Univ. of Calcutta: Reader 61–64; BHU: Prof. 64–85; INSA Sr Sci. 86–88; CSIR Emeritus Sci. 88–95.

Scientific Work: Research relates to basic mechanism of separation by paper chromatography, synthesis of sucrose in sugar beet leaf, mechanism of nitrogen fixation by *A. vinelandii*, metabolism of L-arabinose, cell-free protein synthesis in *A. vinelandii*, DNA-development, RNA polymerase in *A. vinelandii,* structure and function of ribosomes, and molecular basis of viral multiplication.

Memberships: Member: Soc. of Biological Chemists of India; Assn of Clinical Biochemists of India; Indian Soc. for Cell Biology • Fellow: INSA 77 • NAMS; Intl Medical Sci. Acad.

Awards & Distinctions: INSA J C Bose Medal 80 • UGC Hari Om Ashram Award • Medical Council of India B C Roy Award • Univ. of Calcutta Amulya Raban Award 77 • IICB IC Ray Memorial Medal 94 • Bose Inst. Lifetime Achievement Award 98.

Chaddah, Praveen



Elected: 1993
Position: Dir, UGC–DAE, CSR, Indore
Specialization: Superconductivity; Low Temperature Physics; Phase Transitions
Date and Place of Birth: 20 December 1951; New Delhi
Parents: Raunaqidas Chaddah and Raj Kumari
Spouse and Children: Kumud; two s (Prashant, Pankaj)
Address: UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore 452 017, India
Tel. (0731) 246 3945 (O), (0731) 248 7326, (R), Mobile: 94253 19686
email: chaddah@csr.ernet.in; director@csr.ernet.in

Education: Delhi Univ.: BSc Hons 71, MSc 73; BARC Trg course in Physics 74; Univ. of Mumbai: PhD 78

Career: BARC: Sci. Offr 74–91: Cryogenics and Superconductivity Section; Univ. of Illinois, Urban Champaign: Res. Assoc, 78–80, 82; CAT: Sci. Offr 91–2005; UGC–DAE, CSR: Dir Head 2005–.

Scientific Work: Early work focussed on electron states in structurally disordered materials, and on electron correlation effects. At Urbana-Champaign, initiated measurements of nuclear momentum densities in the quantum solid ^{4}He, using the spallation neutron source IPNS at Argonne. Also worked on correlating the superconducting and martensitic transitions in A-15 superconductors. Worked on the development of superconducting magnets and of multifilamentary NbTi wires at BARC during 1982–87, and later made important contributions to the development and extension of Bean's critical state model for the high-T_c superconductors. Reformulated this as a 'minimum flux-change' hypothesis, and contributed to its application to sample-shapes having finite demagnetization factor. Worked recently on first order phase transitions in vortex-matter in superconductors, as also in magnetic materials. Work on phase coexistence in half-doped manganites, and across first order disorder broadened transitions, emphasizes the role of glass-like arrest of kinetics.

Important Publications: **(1)** Devitrification and recrystallization of magnetic glass $La_{0.5}Ca_{0.5}MnO_3$ (2008) *Phys. Rev.* **B77**, 100402(R). **(2)** Coexisting tunable fractions of glassy and equilibrium long-range-order phases in manganites (2006) *J. Phys. Condens. Matter* **18**, L605. **(3)** Supercooling across first-order phase transitions induced by density variation (1999) *Phys.Rev.* **B60**, 11926. **(4)** Magnetisation hysteresis and critical current density (1989) *Physica* **C159**, 570. **(5)** Momentum density of hcp ^{4}He (1984) *Phys.Rev. Lett.* **52**, 847.

Memberships: Fellow: INSA 2005; NASI 2006; APAM 2008.

Awards & Distinctions: INSA Young Scientist Medal 78 • MRSI-ICSC Prize for Superconductivity 93.

Chakko, Kaiyalathu Chakko*

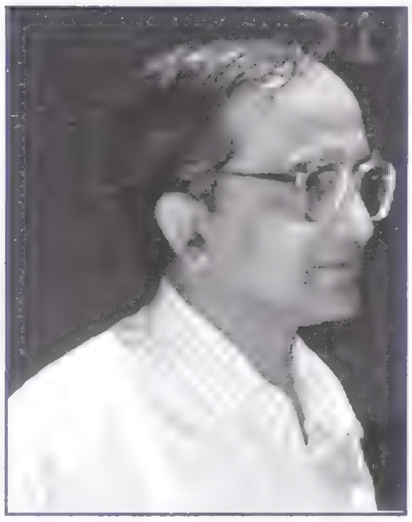
Elected: 1934
Specialization: Civil Engineering
Date of birth: 25 August 1892
Last Address: College of Engineering, Guindy, Madras, India
***Deceased:**

Education: Univ. of Madras: BA 13, MSc 19, DSc 21.

Career: College of Engg, Madras, Dept of Civil Engg: Prof.

Important Publications: The stress-strain properties of nitro-cellulose and the law of its optical behaviour (1921) *Philos. Trans. R. Soc.* **A221,** 139–162.

Chakrabarti, Bikas Kanta



Elected: 1997
Position: Sr Prof., SINP, Kolkata
Specialization: Statistical Physics; Condensed Matter Physics; Computational Physics and their applications to Social Sciences
Date and Place of Birth: 14 December 1952; Calcutta, West Bengal
Parents: Bimal Kanta Chakrabarti and Pratima
Spouse and Children: Kaberi ; two *s* (Kalyan-Sundar, Anindya-Sundar)
Address: Theoretical Condensed Matter Physics Division, Saha Institute of Nuclear Physics,
1/AF, Bidhan Nagar, Kolkata 700 064, India
Tel. (033) 2337 5345-9/2453, 2321 4869 (O), (033) 2370 9377 (R), Mobile: 93395 11916
email: bikask.chakrabarti@saha.ac.in; URL: http://www.saha.ac.in/cmp/bikask.chakrabarti/bikas.html

Education: Calcutta Univ.: BSc Hons 71, MSc 73, PhD 79.

Career: Saha Inst. of Nuclear Physics, Calcutta: Lecturer 83–86, Reader 86–89, Assoc. Prof. 89–94, Prof. 94–; ISI, Kolkata: Vis. Prof. of Economics 2006–.

Scientific Work: Major contributions may be broadly divided into five distinct topics, namely: statistical physics of fracture and breakdown in disordered solids; quantum annealing and computation employing the transverse ising systems, statistical physics of linear polymers in porous media, dynamic symmetry breaking transitions, and econophysics of income and wealth distribution in societies.

Important Publications: : **(1)** *Quantum ising phases & transitions in transverse ising models* (1996) Springer. **(2)** *Statistical physics of fracture & breakdown in disordered systems* (1997) Oxford. **(3)** Dynamic transitions and hysteresis (1999) *Rev. Mod. Phys.* **71**, 847. **(4)** Kinetic exchange models for income and wealth distributions (2007) *Eur. Phys. J.* **B 60**, 135. **(5)** Quantum annealing and analog quantum computations (2008) *Rev. Mod. Phys.* **80,** 1061.

Memberships: Indian Physics Assn • Fellow: INSA 2003.

Awards & Distinctions: Science Acad. Medal for Young Scientists, INSA 84 • S S Bhatnagar Award, CSIR 97.

Chakrabarti, Partha Pratim

Elected: 2000
Position: INAE Visweswariah Chair Prof., Dept of Comp. Sci. and Engg & Dean, Sponsored Res. and Industrial Consultancy, IIT Kharagpur
Specialization: Artificial Intelligence; Computer Aided Design for VLSI; Algorithms
Date and Place of Birth: 1 October 1962; Krishna Nagar, West Bengal
Parents: Sital Chandra Chakrabarti and Sukla
Spouse and Children: Barnali; one *d*
Address: Department of Computer Science & Engineering, Indian Institute of Technology,
Kharagpur 721 302, India
Tel. (03222) 28 2037 (O), (03222) 28 3467 (R)
email: ppchak@cse.iitkgp.ernet.in; URL: http://www.geocities.com/ppchakrabarti

Education: IIT Kharagpur: BTech 85, PhD 89.

Career: IIT Kharagpur: Project Offr 88, Lecturer 88–90, Asst Prof. 90–96, Assoc. Prof. 96–99, Prof. 99–.

Scientific Work: Contributed to the area of heuristic search and solved a number of open problems including searching under memory constraints and solutions to cyclic and/or graphs. Several new results and algorithms were obtained in multi objective search, search learning, multiple heuristics, approximation, etc. These methods have been applied to circuit design, planning, scene analysis, etc. Developed a framework for solving constraint optimization problems from logical specifications using a combination of heuristic search, constraint satisfaction and deduction. Contributions in the area of CAD for VLSI, include multi-criteria logic-level and high-level synthesis, and novel design approaches like modify and restore method, design space exploration and genetic approaches to design. Theoretical contributions include a complexity analysis of various synthesis sub-tasks including the complexity of approximation. Work in simulation, verification and synthesis incorporated in industry level tools. Currently working towards developing a frame work for reasoning about circuits.

Memberships: Fellow: INSA 2000; West Bengal Acad. Sci. Technol.

Awards & Distinctions: President of India Gold Medal 85 • INSA Young Scientist Medal 91 • Anil K Bose Medal 75 • INAE Young Engineer Award 97 • Swarna Jayanti Fellowship 97–98 • S S Bhatnagar Award 2000.

Chakrabarti, Pinakpani

Elected: 1998
Position: Prof., Bose Inst., Kolkata
Specialization: X-ray Crystallography; Structural Biochemistry; Bioinformatics
Date and Place of Birth: 1 January 1955; Guwahati, Assam
Parents: Phanindra Kumar Chakrabarti and Swastika
Spouse and Children: Sarmistha; one *s*, one *d* (Aveek, Averi)
Address: Department of Biochemistry & Bioinformatics Centre,
Bose Institute, P-1/12, CIT Scheme, Kolkata 700 054, India
Tel. (033) 2355 0256, (033) 2569 3253 (O), (033) 2466 6989 (R), Mobile: 98307 51009
email: pinak@boseinst.ernet.in; pinak_chak@yahoo.co.in; URL: http://www.bic.boseinst.ernet.in/pinak/

Education: Gauhati Univ.: BSc 74; IIT Kharagpur: MSc 76; IISc, Bangalore: PhD 81.

Career: ETH Zurich: Postdoc Fellow 81–82; Purdue Univ.: Postdoc fellow 82–84; Univ. of California: Res. Assoc. 84–89; California Inst. Tech.: Res. Fellow 89–90; National Chem. Lab: Sci. 90–97; Bose Inst.: Reader 97, Prof. 2003–.

Scientific Work: Using X-ray crystallography, derived the structures of both small and macromolecules. In particular, studied the solid-state trans-esterification reaction in an organic molecule that mimics enzymatic reaction. The structure of CII (from bacteriophage lambda) enumerated is interesting as the individual subunits in the tetrameric structure have different conformations. Major contribution has been in the analysis of known protein structures and complexes to understand the underlying principles of protein stability (in terms of different types of weak non-covalent interactions) and macromolecular recognition. Group created a number of databases and web-servers on protein-protein interactions, scoring functions to detect the native fold from among a set of decoy structures. Modelling, dynamics and ion-binding by proteins have been studied. Been involved in the elucidation of the structure of transcription factors from *Vibrio cholerae* and in understanding the effect of nanoparticles on protein structure and unfolding.

Important Publications: **(1)** Geometry of nonbonded interactions involving planar groups in proteins (2007) *Prog. Biophys. Mol. Biol.* **95**, 83–137 **(2)** Conservation and relative importance of residues across protein-protein interfaces (2005) *Proc. Natl Acad. Sci.* USA **102**, 15447–15452 **(3)** Dissecting protein-protein recognition sites (2002) *Proteins* **47**, 334–343. **(4)** Cis peptide bonds in proteins: residues involved, their conformations, interactions and locations (1999) *J. Mol. Biol.* **294**, 271–288 **(5)** Anion binding sites in protein structures (1993) *J. Mol. Biol.* **234**, 463–482.

Memberships: Member: Guha Res. Conf.; Indian Crystallographic Assn; Soc. of Biological Chemists; Chemical Research Soc. of India; Indian Biophysical Soc. • Fellow: INSA 2006; NASI 2006.

Awards & Distinctions: P S Sarma Memorial Award 2004 • Prof. Y T Thathachari Prestigious Award for Science 2005 • J C Bose National Fellow.

Chakraborty, Tushar Kanti

Elected: 2003
Position: Dir, CDRI, Lucknow
Specialization: Peptides and Peptidomimetics; Organic Synthesis
Date and Place of Birth: 1957; Agarpara, West Bengal
Parents: Naresh Chandra Chakraborty and Anjali
Spouse and Children: Susmita; one *d* (Kasturi)
Address: Central Drug Research Institute, Chattar Manzil Palace, Lucknow 226 001, India
Tel. (0522) 252 3286;(0522) 261 0932(0)
email: chakraborty@cdri.res.in; director@cdri.res.in

Education: Calcutta Univ.: BSc Hons 77; IIT Kanpur: MSc 79, PhD 84.

Career: IICT, Hyderabad: Sci. 87–2009; CDRI: Dir 2009–.

Scientific Work: Development of new designer molecules based on sugar amino acids and related multifunctional building blocks, studying their three-dimensional membranes, anion binding by directed hydrogen bonding interactions, and development of artificial receptors to carry out *in vitro* studies of various molecular recognition processes. Peptidomimetics, peptide conformations and secondary structures, structure-activity relationship studies. Synthetic organic chemistry with special emphasis on asymmetric synthesis and total synthesis of polyketide based macrolides as well as acyclic natural products. Total synthesis of other biologically active natural products like peptides, cyclic peptides and peptides having 'unnatural' amino acids, enzyme inhibitors, etc.

Important Publications: **(1)** *J. Org. Chem.* (2003) **68**, 6257–6263. **(2)** *J. Chem. Sci.* (2004) **116**, 187–207. **(3)** *J. Org. Chem.* (2006) **71**, 6240–6243. **(4)** *J. Med. Chem.* (2007) **50**, 5539–5542. **(5)** *J. Org. Chem.* (2008) **73**, 8731–8744.

Memberships: Fellow: NASI 2000; INSA 2007; Indian Chemical Soc.

Awards & Distinctions: A P Akademi of Sci., Young Scientist Award 91 • CSIR Young Scientist Award 91 • Basudev Banerjee Memorial Award, Indian Chemical Soc. 99 • S S Bhatnagar Prize 2002 • CRSI Medal 2002 • Andhra Pradesh Scientist Award 2005 • NASI-Reliance Platinum Jubilee Award 2006.

Chakravarti, Satyendra Nath*

Elected: 1934
Specialization: Chemistry; Forensic Sciences
Date and Place of Birth: 1903; Calcutta
Children: 4
Last Address: Government of the United Provinces and Central Provinces, Agra, India
***Deceased:** 28 August 1945

Education: Univ. of Lucknow: MSc; Dyson Perrins Lab., Oxford: DPhil 29.

Career: Annamalai Univ. Head, Dept of Chem.: 29–35; Govt of United Provinces and Central Provinces: Chemical Examiner 35–45.

Scientific Work: Was involved in studies related to berberine, tetrahydroberberine and protoberberinium salts. Dealt with syntheses of isomers of tetrahydroberberine, a new method of synthesis of substituted phthalonic acids, synthesis of paraberine, homopthalic acids, psi-opionic acid and related studies. Carried out chemical investigations of several Indian medicinal plants. In forensic chemistry, published several papers of analytical interest such as methods to distinguish between various types of opium preparations, methods of estimating cocaine in mixtures with other drugs, etc.

Important Publications: Author of forty two original scientific publications.

Memberships: Member of Council: Indian Chemical Soc. • Fellow: INSA 35; Royal Institute of Great Britain and Ireland.

Chakravarti, Siddheshwari Prasad*

Elected: 1942
Specialization: Electronics and Telecommunication Engineering
Date and Place of Birth: 3 November 1904
Last Address: 93, Mahatma Gandhi Marg, Lucknow 226 001, India
***Deceased:** 15 July 1981

Education: Univ. of London: MSc, MSc(Engg), DIC, AMIEE.

Career: Govt of India: Radio Controller; IISc, Bangalore, Dept of Electrical Technology & Central Workshop: Prof., Head; Govt Engineering College, Jabalpur: Principal.

Scientific Work: Contributions include work on (a) Radio engineering problems (such as atmospheric disturbances and electrical interferences to radio broadcasting; fading, echos and special radio transmission measurements; ultra high frequency radio systems; thermionic negative impedances) (b) Carrier current telephone and telegraph problems; (c) Electro-acoustic problems. Has two British patents on filter converter and ultra wide-band low-loss bond-pass filter.

Chakravarty, Akhil Ranjan

Elected: 1995
Position: Prof., IISc, Bangalore
Specialization: Bioinorganic Chemistry; Co-ordination Chemistry; Metal-based Anticancer Agents
Date and Place of Birth: 20 May 1953; Burdwan, West Bengal
Parents: Manoranjan Chakravarty and Belarani Devi
Spouse and Children: Manisha; two s (Avik, Aniv)
Address: Department of Inorganic & Physical Chemistry, Indian Institute of Science, Bangalore 560 012, India
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email: arc@ipc.iisc.ernet.in; akhil_chakravarty@yahoo.co.in; URL: http://ipc.iisc.ernet.in/arc.html

Education: Univ. of Burdwan: BSc 73, MSc 75; Calcutta Univ.: PhD 82.

Career: IACS, Calcutta: Res. Assoc. 82; Texas A & M Univ., Texas, USA: Res. Assoc. 82–85; IISc, Bangalore: Asst Prof. 85–91, Assoc. Prof. 91–97, Prof. 97–.

Scientific Work: Developed the chemistry of 3d-metal complexes showing light-induced DNA cleavage activity. Metal complexes with their versatile structures, redox behaviour and physicochemical properties are found to be useful as highly sensitive diagnostic agents as exemplified by the bleomycins or cis-platin in chemotherapeutic applications. Designing molecules that cleave DNA at ~700 nm is of great importance in photodynamic therapy (PDT) of cancer because of significant skin penetration of light in the near IR region. Prepared a quinoxaline-copper(II) complex which shows metal-promoted efficient DNA cleavage activity on ruby laser irradiation. Also prepared ternary copper(II) and iron(III) complexes having DNA binding ligand and a photosensitizer suitable for DNA cleavage on red light irradiation. Work provides the first direct evidence for the dual involvement of the d-d band along with the charge transfer (LMCT) band in the photoexcitation processes resulting in the activation of oxygen molecule that leads to DNA cleavage. Copper and iron being bio-essential metal ions, such complexes have opened up new avenues for development of new PDT drugs suitable for cellular use.

Important Publications: **(1)** Ternary copper complexes for photo-cleavage of DNA by red light: direct evidence for sulphur to copper charge transfer and d-d band involvement (2003) *J. Am. Chem. Soc.* **125**, 12118–12124. **(2)** Metal-assisted red light induced efficient DNA cleavage by dipyridoquinoxaline-copper (II) complex (2003) *Chem. Commun.* 2452–2453. **(3)** Encapsulation of paramagnetic $3d^1$-vanadium(IV) in an antiferromagnetically coupled dodecanuclear copper(II) cage (2003) *Chem. Commun.* 2978–2979. **(4)** Cluster expansion (2004) *Angew. Chem. Int. Ed.* **43**, 87–90. **(5)** Helical supramolecular host with aquapores anchoring alternate molecules of helical water chains (2004) *Chem. Commun.* 716–717.

Memberships: Chemical Research Soc. of India • Fellow: NASI 2006.

Awards & Distinctions: S S Bhatnagar Prize 98 • Prof. P Ray Memorial Award, Indian Chemical Soc. 98 • Silver Medal of CRSI 2007 • J C Bose Fellowship, DST 2008–13.

Chakravarty, Charusita

Elected: 2006
Position: Prof., IIT Delhi
Specialization: Chemical Physics; Theoretical & Computational Chemistry
Date and Place of Birth: 5 May 1964; Massachussetts, USA
Parents: Sukhamoy Chakravarty and Lalita
Spouse and Children: Ramakrishna Ramaswamy; one *d*
Address: Department of Chemistry, Indian Institute of Technology, Hauz Khas, New Delhi 110 016, India
Tel. (011) 2659 1510 (O), (011) 2617 8186 (R), Mobile: 98108 04202
email: charus@chemistry.iitd.ernet.in

Education: Univ. of Delhi: BSc Hons 85; Univ. of Cambridge, UK: BA 87, PhD 90.

Career: Univ. of California: Postdoc Res. Assoc. 91–92; IIT Delhi: Sr Sci. Offr 92–93, Asst Prof. 94–02, Assoc. Prof. 2002–; Univ. of Cambridge: Res. Fellow: 93–96.

Scientific Work: Current research involves development and application of computer simulation methods to study atomic and molecular systems.

Awards & Distinctions: IASc Assoc. 95–99 • INSA Medal for Young Scientists 96 • BM Birla Science Award 99 • DST Swarnajayanti Fellowship 2003–2004 • Bronze Medal, Chemical Res. Soc. 2004.

Chakravorty, Animesh

Elected: 1975
Position: Emeritus Prof., IACS, Kolkata
Specialization: Inorganic Chemistry
Date and Place of Birth: 30 June 1935; Mymensingh, Bangladesh
Parents: Jogendra Chandra Chakravorty and Tarubala
Spouse and Children: Aparna; one *s*, one *d*
Address: Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2472 4436 (O), (033) 2485 8327, (R), Mobile: 94338 01715
email: icac@iacs.res.in; animeshc31@gmail.com
URL: http://www.iacs.res.in/icac.html

Education: Calcutta Univ.: BSc Hons 55, MSc 57, PhD 61.

Career: Vidyasagar College, Calcutta: Lecturer 58–61; MIT and Harvard Univ., USA, Dept of Chem.: Res. Assoc. 61–64; IIT, Kanpur: Lecturer, Asst Prof., 64–69, Assoc. Prof. 69–79, Prof. and Head 74–77; IACS, Calcutta, Dept of Inorganic Chem.: Prof. & Head 77–97; Texas A & M Univ., Dept of Chem.: Vis. Prof. 83; INSA Golden Jubilee Res. Prof. 96–2001; JNCASR Hindustan Res. Prof. 2002–06.

Scientific Work: Molecular transition metal chemistry: synthesis, structure, variable valence phenomena and associated reactions of coordination, bioinorganic and organometallic systems. Over three hundred research papers in major international journals in addition to several review articles, book chapters and a number of popular articles in English, Bengali and Hindi.

Important Publications: **(1)** Charge transfer spectra of some gold(III) complexes (1961) *J. Chem. Phys.* **35**, 2206. **(2)** Chemistry of tetravalent nickel and related species. Cyclic voltametry of oxidation-reduction equilibria involving protons (1976) *Inorg. Chem.* **15**, 2912. **(3)** Ruthenium and osmium complexes of N,O-chelators: Syntheses, oxidation levels and distortion parameters (1987) *Inorg. Chem.* **26**, 4324. **(4)** Carbohydrate binding to VO(V). Sugar vanadate esters incorporating L-amino acid Schiff bases as coligands (1999) *Inorg. Chem.* **38**, 3283. **(5)** Rhenium chemistry of diazabutadienes and derived iminoacetamides spanning the valence domain II-VI. Synthesis, characterization and metal-promoted regiospecific imine oxidation (2003) *Inorg. Chem.* **42**, 6545.

Memberships: Member: CSIR Chem. Res. Ctr 77; DAE Basic Sciences Ctr 78; DST Spl Ctrs 77; Fellow: TWAS 95 • Hon. Fellow: Indian Chem. Soc., IUPAC; President: Chem. Res. Soc. of India.

Awards & Distinctions: S S Bhatnagar Prize • TWAS Prize • Gold Medals of Chem. Res. Soc. of India and Indian Chem. Soc • INSA T R Seshadri Commemoration Medal INSA • ICS Acharya J C Ghosh Medal • ISCA R C Mehrotra Commemoration Medal • Jawaharlal Nehru Chair, Univ. of Hyderabad • UGC Natl Lecturer • IACS Ajit Memorial Lecturer • Baba Kartar Singh Lecturer.

Chakravorty, Dipankar

Elected: 1981
Position: INSA Hon. Sci., IACS, Kolkata
Specialization: Materials Science; Nanomaterials
Date and Place of Birth: 3 July 1937; Calcutta, West Bengal
Parents: Hem Chandra Chakravorty and Sumati Devi
Spouse and Children: Pratiti; one *d* (Mandira Ray)
Address: Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
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email: mlsdc@iacs.res.in

Education: Calcutta Univ.: BSc Hons 56, MSc 59; Pennsylvania State Univ., USA: PhD 65.

Career: Jadavpur Univ., Calcutta: Lecturer 60–61; Penn. State Univ., USA: Res. Assoc. 65–66; IIT, Kanpur: Res. Assoc. 66–67, Asst Prof. 67–72, Assoc. Prof. 72–75, Prof., Convener, Head (Advanced Centre for Materials Sci.); Sr R&D Technologist 70–72, Prof.-in-Charge R&D 75–87; Central Glass and Ceramics Res. Inst., Calcutta: Dy Dir 82–84; IACS, Calcutta: Prof. Phys. 87–2002, Dir 93–99; INSA Sr Sci. 2002–07; INSA Hon. Sci. 2007–.

Scientific Work: Synthesized nanosized metal particles within a glass medium by sol-gel, ion-exchange and electrodeposition techniques, respectively. Observed quantum size effect in some of these systems. Prepared novel glass compositions with unusual dielectric properties by sol-gel method. Developed a model for conductivity relaxation in oxide glasses, contribution to study of nanocomposites, core-shell nanostructure, metal-nonmetal transition in nanostructures, giant dielectric permittivity in metallic nanowires, interfacial conduction in nano core-shell structures.

Important Publications: **(1)** Memory switching in ion-exchanged oxide glasses (1972) *Appl. Phys. Lett.* **24**, 62. **(2)** Electrical conductance of silver nanoparticles grown in glass-ceramic (1990) *J. Phys.: Condensed Matter* **2**, 9323

(3) Silver electrodeposits in ion exchanged oxide glasses (1993) *Phys. Rev.* **B 47**, 3089. **(4)** Interfacial conduction in silica gels containing nanocrystalline copper oxide (2000) *Appl. Phys. Lett.* **76**, 10. **(5)** Semiconductor to metal transition in PbS nanowires grown in mica channels (2006) *Phys. Rev.* **B73**, 035414.

Memberships: Fellow: Indian Inst. of Ceramics; INSA 83; TWAS 2005 • President: Materials Research Soc. of India 2001–04.

Awards & Distinctions: INSA Prize for Materials Science • ICSC Superconductivity and Materials Science Prize MRSI • DST National Award in Nano Science and Technology.

Chander, Ramesh

Elected: 1993
Specialization: Geodynamics of Himalaya; Seismology; Geophysics
Date and Place of Birth: 6 September 1939; Lahore
Parents: Bhagirath Lal and Shakuntala Devi
Spouse and Children: Phula; one *s*, one *d* (Sharat, Soumita)
Address: 290, Sector 4, Mansa Devi Complex, Panch kula, 134 109
Tel. (0172) 255 5884 (R)
email: rchndr39@yahoo.com

Education: BHU, Varanasi: BSc 58, MSc 60; Columbia Univ., USA: PhD 70.

Career: ONGC: Sr Geophysical Asst 60–62; Univ. of Michigan, USA: Res. Assoc. 70–71; Univ. of Zambia, Phys. Dept: Lecturer 71–76, Sr Lecturer 76–77; Roorkee Univ., Earth Sci. Dept: Lecturer 77–78, Reader 78–81, Prof. 81–2001.

Scientific Work: Pioneered the interpretation of geodesically measured ground elevation changes for causative faults and ruptures of great Himalayan earthquakes and accumulation of earthquake strains during periods between such earthquakes. Carried out detailed and systematic study of seismological data from the Garhwal region to elucidate local seismicity, nature of slip on causative faults of local earthquakes, seismogenic stresses and crustal rheology and the connection between earthquakes and elevation changes in the Himalayas. Contributed to assessment of seismic hazards in the Himalayas by refining limits of seismic gaps, identifying the fault on which great earthquakes occur around the Tehri area, considering the possibility of reservoir induced earthquakes in the Himalayas and highlighting the threat of earthquake induced soil liquefaction in the Gangetic plains. Developed powerful algorithms for various geophysical problems. Studied nature of long-period seismograms between S and surface waves using shear coupled PL wave theory. First to use mantle Rayleigh waves for source mechanism of an intermediate depth earthquake during the nineteen sixties.

Important Publication: **(1)** Probable influence of Tehri reservoir load on earthquakes of the Garhwal Himalaya (1996) *Curr. Sci.* **70**, 4, 291–299. **(2)** Interpretation of ground level changes due to the 1905 Kangra earthquake NW Himalaya (1988) *Tectonophysics*, Elsevier, **149**, 289–298. **(3)** On the synthesis of sluar-couupled PL Waves (1968) *Bull. Seismological Soc. Am.* **58**, 6, 1849–1877. **(4)** Radiation pattern of mantle Rayleigh waves and the source mechanism of the Hindkush earthquake of July 6, 1962 (1965) *Bull. Seismological Soc. Am.* **55**, 5, 805–819 **(5)** Simulation of upper crustal stresses for great and moderate earthquakes of the Himalaya (1995) *Proc. Earth Planet. Sci.* **104**, 1, 115–129.

Memberships: Member: Soc. of Sigma Xi 68 • Fellow: Assn of Exploration Geophysicists; Indian Geophysical Union.

Chandola-Saklani, Asha

Elected: 1992
Position: Prof. and Co-ordinator, HNB Garhwal University.
Specialization: Ornithology; Conservation Biology; Endocrinology
Date and Place of Birth: 3 February 1947; Delhi
Parents: Shivaprasad Chandola and Prabhawatidevi
Spouse and Children: Alok Datt; one s
Address: Biotechnology Programme, Department of Zoology and Biotechnology,
HNB Garhwal University, P.B No. 45, Srinagar, Garhwal 246 174
Tel. (01370) 26 7322 (O), (01346) 25 2215 (R), Mobile: 94120 18010
email: ashachandola@yahoo.co.in; ashachandola@gmail.com

Education: Agra Univ.: BSc 64, MSc 66; BHU: PhD 72.

Career: BHU, Dept of Zoology: Jr Res. Fellow 66–69, Ad hoc Lecturer 71–72, DAE Sr Res. Fellow 71–75, Lecturer 75–81; Inst. Pasteur, Labo. Embryologie Experimental et College de France, Labo. Biologie Moleculaire, France: Res. Fellow 69–71; HNB Garhwal Univ., Srinagar Garhwal: Reader 81–91, Prof. 91–.

Scientific Work: Demonstrated how birds in tropics integrate photoperiodic information with other environmental cues (food, rainfall) for timing seasonal reproduction, and unfolded various strategies evolved for terminating reproduction. Demonstrated a circannual clock in information-free environment (LL, DD) for the first time ever in any avian species. Standardized radioimmunassay for thyroid hormones (thyroxine, T_4; tri-iodothyronine, T_3) in vertebrate sera in the Indian subcontinent. Challenged prevailing concept that T_4 is a prohormone providing unequivocal evidence for its hormonal role in animal physiology. Demonstrated that monodeiodination of T_4–T_3 may be a strategy for physiological timing of seasonal migration, molting, reproduction. Found that despite absolute lack of iodine prophylaxis in Garhwal Himalaya, over the last six decades, severity of iodine deficiency disorders has declined. Provided baseline infrastructural data on habitat ecology biology, etc., of endangered Himalayan pheasants and Mahaseer fish paving way for their management and conservation.

Memberships: Fellow: American Ornithologists Union.

Awards & Distinctions: INSA Young Scientist Award 77 • Royal Soc. Bursary Award 80 • UGC Career Award 81.

Chandra, Amalendu

Elected: 2005
Position: Prof., IIT Kanpur
Specialization: Statistical Mechanics of Liquids and Interfaces; Classical and Quantum Simulations; Molecular Modelling
Date and Place of Birth: 6 October 1963; Burdwan, West Bengal
Parents: Tarapada Chandra
Spouse and Children: Ranjita; two children
Address: Department of Chemistry, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7241 (O), (0512) 259 8446 (R), Mobile: 94150 45276
email: amalen@iitk.ac.in; URL: http://home.iitk.ac.in/~amalen

Education: Univ. of Burdwan: BSc 84, MSc 86, IISc, Bangalore: PhD 91.

Career: Univ. of British Columbia, Vancouver: Postdoc Fellow 91–93; Univ. of British, Columbia; Izaac Walton Killan Postdoc Fellowship 92–93; IIT Kanpur: Asst/Assoc. Prof. 93–2001, Prof. 2001–; Washington State Univ.: Vis. Asst Prof. 97, 2000 & 2001; Ruhr–Universitaet Bochum, Germany: Vis. Prof. 2002–03.

Scientific Work: Works in the area of theoretical physical chemistry. Looks at various equilibrium and dynamical aspects of condensed phases, clusters and interfaces by using both classical and quantum methods. Research contributions include both development of analytical theories as well as applications of state-of-the-art simulation techniques coupled with innovative analysis methods based on modern statistical mechanical concepts. Recent research interests include structure and dynamics of hydrogen bonds in associated liquids, dielectric and dynamical properties of electrolyte solutions at high concentrations, structure and dynamics of molecular liquids at solid–liquid, liquid–liquid and liquid–vapour interfaces and in confined environment, proton migration in aqueous solutions and clusters, structure and dynamics of supercooled and supercritical solutions, molecular relaxation at high pressures and electron localization and delocalization in molecular liquids and clusters.

Important Publications: **(1)** Static dielectric constant of aqueous electrolyte solutions: Is there any dynamic contribution? (2000) *J. Chem. Phys.* **113**, 903–905. **(2)** Effects of ion atmosphere on hydrogen-bond dynamics in aqueous electrolyte solutions (2000) *Phys. Rev. Lett.* **85**, 768–771. **(3)** Dielectric constant of water confined in nanocavity (2001) *J. Phys. Chem.* **B105**, 5106–09. **(4)** Connecting solvation shell structure to proton transport kinetics in hydrogen bonded networks via population correlation functions (2007) *Phys. Rev. Lett.* **99**, 145901. **(5)** Vibrational spectral diffusion and hydrogen bond dynamics in heavy water from first principles (2008) *J. Phys. Chem.* **A 112**, 5104.

Awards & Distinctions: IASc Assoc. 94–98 • INSA Young Scientist Medal 95 • INSA A K Bose Memorial Award 97 • Alexander von Humboldt Fellowship, Germany 2002 • DST Ramanna Fellowship 2006 • S S Bhatnagar Prize 2007.

Chandra, Hombe Gowda Sharat

Elected: 1979
Position: Emeritus Prof., IISc, Bangalore
Specialization: Genetics and Evolution
Date and Place of Birth: 11 March 1938; Mandya, Karnataka
Parents: H Hombe Gowda and Rangamma
Spouse and Children: Sreelatha; one *s*, one *d*
Address: Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 1382, (080) 2293 2604 (O), (080) 2663 9353 (R)
email: sharat@mcbl.iisc.ernet.in

Education: Mysore Univ.: BSc Hons 57, MSc 58; Univ. of California, USA: PhD 62.

Career: Inst. of Cancer Res., USA: Vis. Sci. 62–63, Res. Assoc. 64–67; Mysore Univ., Mysore: Reader 63–64; Inst. for Genetic Studies, Bangalore: Principal Sci. and Dir 67–73; IISc, Bangalore: Vis. Prof. 73–75, Prof. 75–2001; JNCASR, Bangalore: Hon. Prof. 2001–.

Scientific Work: Demonstrated that the meiotic sequence in organisms with diffuse centromeres is inverted. Showed that in mealybugs, following paternal irradiation, gynogenetic triploid females originate from fusion products of the first and second polar bodies, demonstrating the totipotency of the latter. Experiments with diploid gynogenetic females led to suggestion that sex determination in lecanoid coccids is not heterozygosity-dependent; flex, an X-linked mutation affecting sex determination in *D. melanogaster* was isolated. Described the chromosomes of several endangered mammals. Developed a gentle and rapid method for salt extraction of the core histones of chromatin and demonstrated that the nucleosome core histones isolated in this manner exist as octamers. Developed a method of quantifying cytosine methylation in genomic DNA by the use of ELISA and photoacoustic spectroscopy. Introduced concept of genome imprinting to mammalian genetics and proposed that, in addition to X-chromosome imprinting, mammalian autosomal genes also could be imprinted. Based on these theoretical considerations and experimental results with mealybugs, developed a hypothesis linking X inactivation and human sex determination.

Memberships: Member: Karnataka State Council for Science and Technol.; ASTRA; National Inst. of Nutrition, Hyderabad • Fellow: INSA 86; NASI 89; Andhra Pradesh Acad. of Sci.; TWAS 2001.

Awards & Distinctions: C V Raman Award 80 • Biotechnology Award • National Acad. of Sci. Haldane Medal • IISc Rustom Choksi Award for Excellence in Sci. Res.

Chandrakumar, Narayanan

Elected: 1993
Position: Prof., IIT Chennai
Specialization: Magnetic Resonance Imaging; MR Spectroscopy and Instrumentation; Spin Physics
Date and Place of Birth: 25 November 1951; Vannarapettai, Tamil Nadu
Parents: R L Narayanan and Janaki
Spouse and Children: Parvathy; one s
Address: Department of Chemistry, Indian Institute of Technology, Chennai 600 036, India
Tel. (044) 2257 4203, 2257 4920 (O), (044) 2649 4073 (R)
email: nckumar@iitm.ac.in; ilango@md3.vsnl.net.in

Education: Univ. of Madras: BSc 70; IIT Madras: MSc 72; IIT Kanpur: PhD 79.

Career: IIT Kanpur: Res. Asst 74–79; CLRI Chennai, Chemical Lab.: Res. Assoc. 80–82, Sci. 82-2001; Max Planck–Institut fur Biophysikalische Chemie, Gottingen, Germany: Vis. Sci. 89–90; Universitat Gesamthochschule Siegen, Germany, Organische Chemie II: Vis. Sci. 93; IIT Chennai: Prof. 2001–.

Scientific Work: Investigated coherence transfer in the rotating frame; predicted and demonstrated relayed correlation in the rotating frame in systems with wholly unresolved couplings. Demonstrated laboratory frame double and triple quantum spectroscopy in such systems. Formulated and developed an operator formalism for solution state NMR involving spin-1 and spin-1/2 nuclei. Developed a high resolution 2D QUADSHIFT experiment for investigations of spin-1 systems in the solid state, permitting sitewise resolution and correlation of quadrupolar couplings and chemical shifts. Provided theoretical formulations for a variety of double resonance experiments. Developed 2D and 3D resolution-enhanced NMR imaging techniques based on multiple quantum coherence, as well as methods for measurement of diffusion coefficients in multicomponent systems.

Awards & Distinctions: Bruker Spectrospin NMR Award 85 • CSIR Young Scientist Award 87.

Chandraratna, Modestus Fernando*

Elected: 1951
Born: 1910
Last Address: Department of Agriculture, Peradeniya, Ceylon
***Deceased:** 1959

Education: BSc Hons; Univ. of London: PhD.

Career: Department of Agriculture, Ceylon: Botanist, Sr Agricultural Res. Offr, Dir.

Chandrasekaran, Chidambara*

Elected: 1945
Specialization: Statistics; Public Health; Demography
Date and Place of Birth: 30 October 1911; Nagpur, Central Provinces
Parents: M S Chidambaram and Mangalam
Spouse and Children: Lakshmi; one *s*, one *d*
Last Address: Sri Kripa, 79/3, Benson Cross Road, Bangalore 560 046, India
***Deceased:** 4 January 2000

Education: Nagpur Univ.: BSc 30, MSc 32; London Univ.: PhD 38; John Hopkins Univ., USA: Masters in Public Health 48.

Career: Inst. of Plant Industry, Indore: Statistician 39–40; BB&CI Railway: Offr-in-Charge compilation 40–41; Vital Statistics and Epidemiology, All India Inst. of Hygiene and Public Health, Calcutta: Asst. Prof. 41–45, Prof. 45–47, 54–59; Demographic Training and Res. Centre, Bombay: Dir 59–65; ECAFE, Bangkok: Regional Advisor 65–70; UNPD: Sr Social Affairs Offr 48–54, Interregional Adviser 70–72; ISEC Bangalore: Vis. Fellow 79–80; UNFPA: Chief, Population Policies and Programmes 72–74; Australian National Univ.: Vis. Fellow; World Bank: Population Specialist 74–78; UN-UAR Cairo Demographic Centre: Consultant 81–82; Rockefeller Foundation: Fellow 47–48.

Scientific Work: Directed the United Nations–Government of India 'Mysore Population Study' on the interrelationship of economic, social and population changes. Devised with assistance the Chandra–Deming formula and the dual method for obtaining birth and death rates.

Memberships: Member: Intl Statistical Inst.; President: Intl Union for the Sci. Study of Population.

Awards & Distinctions: G J Watumull Memorial Prize 64 • Sesquecentennial Celebration Award 67.

Chandrasekaran, Srinivasan

Elected: 1989
Position: Prof., Dept of Organic Chemistry, IISc, Bangalore
Specialization: Synthetic Organic Chemistry; Natural Products Organometallic Chemistry
Date and Place of Birth: 15 November 1945; Mayavaram, Tamil Nadu
Parents: R Srinivasan and Rajalakshmi
Spouse and Children: Jayanti; two *d* (Ramya, Aarthi)
Address: Department of Organic Chemistry, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 2423, (080) 2293 2404 (O), (080) 2360 1269 (R), Mobile: 98860 88344
email: scn@orgchem.iisc.ernet.in

Education: Madras Univ.: BSc 65, MSc 67, PhD 72.

Career: Harvard Univ. Cambridge: Res. Assoc. 73–75, 76–77; Sybtex Res.; California, USA: Res. Assoc. 75–76; IIT Kanpur: Lecturer 78–80, Asst Prof. 81–85, Prof. 85–89; IISc, Bangalore, Dept of Organic Chem.: Prof. 89.

Scientific Work: New synthetic methodology: chemistry of titanium (III) tetrahydroborates and their use in stereoselective reductions; chemistry of binary molybdenum–sulphur systems as efficient sulphur-transfer reagents development of new protective groups for peptide synthesis using Mo–S systems. Study of induced internal redox reactions of tetrathiomolybdates. New ruthenium (II) Bisoxazoline catalysts for highly chemoselective aerobic epoxidation and for asymmetric oxygen transfer reactions. Nanostructured amorphous metals/alloys as new catalysts for cycloalkane oxidation and epoxidation; Hybrid organic inorganic chiral catalysts for asymmetric synthesis, chemistry of tetraselenotungstates as new selenium transfer reagents stereo and regioselective synthesis of aziridino epoxides directed asymmetric aldol reactions chiral ferrocene derivatives as new catalysts total synthesis of reactions natural products. Application of the reagents and synthetic methodologies developed in the laboratory to the synthesis of natural products particularly cyclic peptides, pyrrolo benzodiazepine class of anti-tumour antibiotics, carbohydrate derivatives, cyanotoxins, glycoaminoacids, glycosidase/mannosidase inhibitors, urease inhibitors, etc. organic materials design and synthesis of metallorganic chemical vapour deposition precursors for thin film applications. Design and synthesis of new organic nonlinear optical materials. Design and synthesis of new organic-inorganic hybrid materials as catalysts for asymmetric synthesis.

Important Publications: **(1)** Simultaneous protection and activation of amino acids using propargyl pentafluro-phenyl carbonate (2006) *Organic Lett.* **8**, 1933–1936. **(2)** Chemistry of tetrathiomolybdate: aziridine ring opening reactions and facile synthesis of interesting sulphur heterocycles (2005) *J. Am. Chem. Soc.* **127**, 12760–12761. **(3)** Novel methodology for the synthesis of 2-C-branched glyco-amino-acids by ring opening of 1, 2-cyclopraopanecarboxylated sugars (2004) *Organic Lett.* **6**, 1777–1779. **(4)** Tandem sulphur transfer reduction michael addition mediated by benzyltriethyammonium tetrathiomolybdate (2000), *Angew. Chem. Int. Edn (Eng).* **39**, 23, 4316–4319. **(5)** Catalytic aerobic oxidation of cycloalkanes with nanostructured amorphous metals and alloys (1999) *Angew. Chem.* Int. Ed. (Eng) **38**, 3521–3522.

Memberships: Fellow: INSA 92; TWAS 99.

Awards & Distinctions: Basudev Banerjee Medal & Prize 87 • S S Bhatnagar Prize 89.

Chandrasekhar, Jayaraman

Elected: 1992
Position: Prof., Assoc. Dir, Neurogen Corporation, USA
Specialization: Computational Chemistry ; Theoretical Organic Chemistry
Date and Place of Birth: 23 October 1952; Bangalore, Karnataka
Parents: T K Jayaraman and Santha
Spouse and Children: Syamala; one s
Address: Neurogen Corporation, 35, Northeast Industrial Road, Stanford CT 06405 USA
Tel. (+1-203) 488 8201/4642 (O), (+1-203) 248 2045 (R)
email: jayaraman_chandrasekhar@nrgn.com

Education: Bangalore Univ.: BSc 70; IIT, Madras: MSc 72, PhD 77.

Career: Universitaet Erlangen-Nuernberg, Inst. fur Organische Chemie, Erlangen, Germany: Res. Assoc. 77–80; Purdue Univ., Dept of Chem., USA: Vis. Res. Asst Prof. 80–84; IISc, Bangalore, Dept of Organic Chem.: Asst Prof. 85–91, Assoc. Prof. 91–2001; Neurogen Corpn, Connecticut, USA: Res. Fellow, Prof., Assoc. Dir 2001–.

Scientific Work: Used computational methods to study structure, bonding, reactivity and molecular properties of a wide variety of systems. Quantified electronic effects such as negative hyperconjugation, anomeric effect, homoconjugation, through-space and through-bond effects, etc., and derived interesting implications of these interactions on structure and reactivity. Demonstrated the importance of captodative and distonic stabilization in radical ions. Contributed to the understanding of factors responsible for Pi-face selectivity in nucleophilic, electrophilic and cycloaddition reactions. Elucidated bonding and strain effects in fullerene derivatives.

Awards & Distinctions: IASc Assoc. 86–89 • Hussain Zaheer Young Scientist Award.

Chandrasekhar, Sivaramakrishna*

Elected: 1962
Specialization: Condensed Matter Physics; Liquid Crystals
Date and Place of Birth: 6 August 1930; Calcutta, West Bengal
Parents: Sashiah Sivaramakrishnan and Sitalakshmi
Spouse and Children: Ila; one *s*, one *d*
Last Address: Centre for Liquid Crystal Research, P B No. 1329, Bangalore 560 013, India
***Deceased:** 8 March 2004

Education: Nagpur Univ.: BSc Hons 50, MSc 51, DSc 54; Cambridge Univ.: PhD 57; Univ. College & Royal Inst. London: Postdoc. Res. 59; Cambridge Univ.: ScD 87.

Career: RRI, Bangalore: Sr Res. Scholar 50–54; Cambridge Univ.: 1851 Exhibition Scholar 54–57; Univ. College, London: DSIR Fellow, 57–59; The Royal Institution: Res. Fellow 59–61; Univ. of Mysore: Prof. and Head, Physics Dept 61–71; RRI, Bangalore, Liquid Crystals Lab.: Prof. and Head, 71–90; Univ. of Cambridge, UK, Cavendish Lab.: Nehru Vis. Prof. 86–87; Centre for Liquid Crystal Res., Bangalore: Dir 92–2004; CSIR Bhatnagar Fellow 90; Jawaharlal Nehru Centre for Advanced Sci. Res., Bangalore: Hon. Prof. 91.

Scientific Work: Revived interest in liquid crystals. Predicted and discovered discotic liquid crystals. well-known contributions to the application of the dynamical theory of reflections to study the fascinating optical properties of cholesteric liquid crystals which have a helical structure with a pitch which is usually approx 0.5 μm and to the extensions of the molecular theory of nematic liquid crystals beyond the MS model. The pinnacle of career was the discovery of a new type of liquid crystal made of a new type of molecules. These had the shape of discs rather than the well studied rods. The discs exhibit columnar liquid crystals which have two dimensional periodic order. A few thousand compounds with disc-like molecules have since been synthesized. The columnar liquid crystals are being explored for their highly anisotropic conducting properties useful in many device applications.

Memberships: Fellow: INSA 78 Royal Soc. London 83; Inst. of Phys. London • TWAS 83.

Awards & Distinctions: CSIR Silver Jubilee Award 72 • SS Bhatnagar Prize 72 • FICCI Award 79 • CV Raman Award 81 • IACS Mahendra Lal Sircar Award 84 • Karnataka Rajyotsava Award 86 • Cambridge Univ. ScD 87 • INSA Homi Bhabha Medal 92 • IPA Rd Birla Award 92 • Royal Society Royal Metal 94 • UNESCO Niels Bohr Gold Medal 98 • Padma Bhushan 98 • Chevalier dans L'Order des Palmes Academiques 99 • Russian Liquid Soc. Freed ericksz Medal 2000 • Dsc(hc) Univ. Mysore.

Important Publications: *Liquid crystals. Cambridge monogaph or physics* (1977) Cambridge Univ. Press, pp. 1–342.

Chandrasekhar, Subrahmanyan*

Elected: 1934
Specialization: Theoretical Astrophysics; Relativity
Date and Place of Birth: 19 October 1910; Lahore, Pakistan
Parents: Chandrasekhara Subrahmanya Ayyar and Parvati
Spouse: Lalitha
Last Address: University of Chicago, Laboratory for Astrophysics & Space Research, 933 E, 56th Street, Chicago, Illinois 60637, USA
***Deceased:** 21 August 1995

Education: Madras Univ.: BSc Hons 30, MA, PhD; Cambridge Univ.: PhD 33.

Career: Cambridge Univ.: Fellow 33–37; Univ. of Chicago, USA: Res. Assoc. 37–38; Dept of Theoretical Astrophysics: Asst Prof. 38–41, Assoc. Prof. 42–43, Distinguished Service Prof. 44–46, Morton D Hull Distinguished Sr Prof. 47–52, Emeritus Prof. 85–95.

Scientific Work: Research interests during six decades spanned an incredibly wide spectrum. But there was a distinct pattern. They are briefly: (a) stellar structure, including the theory of white dwarfs (1929–39); (b) stellar dynamics, including the theory of Brownian motion (39–43); (c) theory of radioactive transfer, the theory of illumination and the polarization of sunlit sky, the theories of planetary and stellar atmospheres, and the quantum theory of the negative ion of hydrogen (43–50); (d) hydrodynamic and hydromagnetic stability (52–61); (e) the equilibrium and the stability of ellipsoidal figures of equilibrium (61–68); (f) the general theory of relativity and relativistic astrophysics (62–71); (g) the mathematical theory of black holes (71–83); (h) the theory of colliding gravitational waves and non-radial perturbations of relativistic stars (83–95).

Important Publications: **(1)** *An introduction to the study of stellar structure* (1939, 1958) Doven, New York. **(2)** *Principles of stellar dynamics* (1942) Doven, New York.

Books and Monographs: **(1)**. *An introduction to the theory of stellar structure* (1930) Univ. of Chicago Press. **(2)** *Principles of stellar dynamics* (1943) Univ. of Chicago Press. **(3)** Stochastic problems in physics and astronomy (1943) *Rev. Mod. Phys.* **15**, 1–89. **(4)** *Radioactive transfer* (1950) Clarendon Press. **(5)** *Hydrodynamic and hydromagnetic stability* (1961) Clarendon Press. **(6)** *Ellipsoidal figures of equilibrium* (1968) Yale Univ. Press. **(7)** *The mathematical theory of black holes* (1983) Clarendon Press.

Memberships: Fellow: London Royal Soc. 44 • Member: US Natl Acad. of Sci. 55; American Astronomical Soc.; American Philosophical Soc.; American Acad. of Arts and Sci. 57.

Awards & Distinctions: American Astronomical Soc. (Pacific) Bruce Medal 52 • Royal Astronomical Soc. Gold Medal 53 • American Acad. of Arts & Sciences Rumford Medal 57 • Royal Medal 62 • USA National Medal of Sci. 66, 67 • Padma Vibhushan 68 • Draper Medal 71 • London Royal Soc. Copley Medal 84 • INSA Ramanujan Medal 62 • National Acad. of Sci. Henry Draper Medal 71 • Dannie Heineman Prize 74 • Physics Nobel Prize 83 • Copley Medal 84 • INSA Vainu Bappu Award 85.

Chandrasekhar, Vadapalli

Elected: 2003
Position: Prof., IIT Kanpur
Specialization: Inorganic Chemistry; Organometallic Chemistry; Inorganic Rings & Polymers; Many-Group Chemistry
Date and Place of Birth: 6 Nov 1958; Kolkata, West Bengal
Parents: V Sitaramamurthy and V Sita Devi
Spouse and Children: V Sudha; one *s*, one *d*
Address: Department of Chemistry, Indian Institute of Technology, Kanpur 208 096, India
Tel. (0512) 259 7259 (O), (0512) 259 8549 (R)
email: vc@iitk.ac.in

Education: Osmania Univ., Hyderabad: BSc 75, MSc 77; IISc, Bangalore: PhD 82.

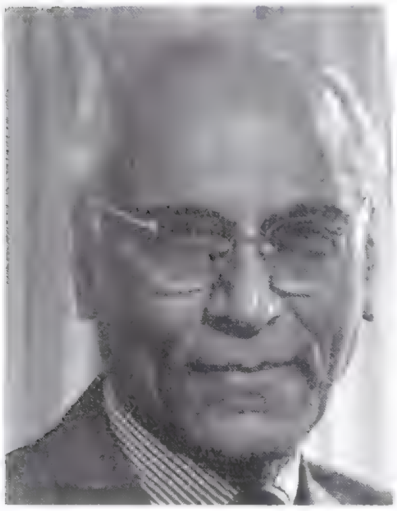
Career: Univ. of Massachusetts, USA: Postdoc 83–86; Indian Petrochemicals Corp. Ltd: Sr Res. Offr 86–87; IIT Kanpur: Asst Prof. 87–91, Assoc. Prof. 91–95, Prof. 95–.

Scientific Work: Contributed significantly to the chemistry of inorganic rings, clusters and polymers and their applications. Has also worked extensively on the organometallic chemistry of main-group elements. Has unravelled many synthetic and structural problems that are present in this difficult but challenging area and has been successful in the understanding and utilization of structure-property relationships that exist in these complex systems. Has also shown the applications of many systems in the area of catalysis, magnetism, electro- and photoactive materials.

Important Publications: **(1)** Nanodimensional organostannoxane molecular assemblies (2007) *Acc. Chem.* Res. **40**, 420–434. **(2)** Cyclocarbophosphazene containing tetrameric assemblies formed by the mediation of P-O-P and P-O-Cu linkages (2006) *J. Am. Chem. Soc.* **128**, 6802–6803. **(3)** Alternating hydrophilic and hydrophobic pockets in the channel structures of organostannoxane prismanes: Preferential confinement of guest molecules (2005) *J. Am. Chem.* Soc. **127**, 11556–11557. **(4)** A lipophilic hexaporphyrin assembly supported on a stannoxane core (2005) *J. Am. Chem. Soc.* **127**, 2410–2411. **(5)** A luminescent linear trinuclear magnesium complex assembled from a phosphorus-based tris-hydrazone ligand (2005) *Chem. Commun.* 459–461.

Awards & Distinctions: INSA Young Scientist 89 • CRSI Medal 2002 • Friedrich Wilhelm Bessel Res. Award 2003 • S S Bhatnagar Award 2003.

Chandrasekharan, Komaravolu



Elected: 1959
Position: Prof., Emeritus
Specialization: Analysis; Theory of Numbers
Date and Place of Birth: 21 November 1920
Spouse and Children: Sarada; two s
Address: Eidg. Technische Hochschule, Mathematik, Hut D15 ETH Zentrum,
8092 Zurich, Switzerland
Tel. (+41-044) 632 4199 (O), (+41-044) 381 9686 (R)

Education: Madras Univ.: MSc; Inst. for Advanced Study, Princeton, USA: PhD.

Career: TIFR Bombay: Sr Prof., Dy Dir 49–65.

Scientific Work: Outstanding work in the domain of summability of series by typical means. Developed the application of typical means of fourier series.

Important Publications: *Elliptical functions* (1984); *Introduction to analytic number theory.*

Memberships: Member: Scientific Advisory Committee of Cabinet, Government of India 61–66 • President: Intl Mathematical Union.

Awards & Distinctions: S S Bhatnagar Award 63 • Ramanujan Medal 66.

Chandrasekharan, Venkataraman*

Elected: 1973
Specialization: Spectroscopy; Crystal Physics
Date and Place of Birth: 12 November 1925
Last Address: 96, Fontain au Roi, 75011 Paris, France
***Deceased:** 5 September 2003

Education: Andhra Univ.: BSc 44; Mysore Univ: MSc 45, DSc 52.

Career: IISc, Bangalore: Res. Fellow 45–59; Univ. of Oregon: Res. Assoc. 59–61; CNRS Laboratire des Hautes Pression, Paris: Staff Sci., Directeurde Recherches 60–91.

Scientific Work: Made notable contributions in Brillouin and Raman scattering from crystals and the optical properties of crystals in the Schumann region. Work on the number of Brillouin components in anisotropic crystals is considered definitive. Elegant techniques developed to study the intensity and polarization of Raman lines in optically active crystals are now extensively used. Subsequent work was to study the optical properties of crystals in the vacuum ultraviolet. Designed and constructed spectrophotomagnetic propagation in anisotropic media. Pioneer of computer simulation of dynamical properties of molecular crystals and solids.

Chandrashekar, Tavarekere Kalliah

Elected: 2000
Position: Dir, NISER, Bhubaneswar
Specialization: Bio-inorganic Chemistry; Synthetic Inorganic Chemistry; Catalysis
Date and Place of Birth: 1 January 1956; Shimoga, Karnataka
Parents: T L Kalliah and T K Jayamma
Spouse and Children: Ashakiran; two *d* (Preeti, Prakruti)
Address: National Institute for Science Education and Research (NISER), Institute of Physics Campus
Sachivalaya Marg, Bhubaneswar 751 005, India
Tel. (0), (0674)230 2435, (0674) 274 1225 (R), Mobile: 94370 57878
email: tkc@iitk.ac.in, tkc@niser.ac.in; URL: http://www.iitk.ac.in/tkc.html

Education: Mysore Univ.: BSc 76, MSc 78; IISc, Bangalore: PhD 82.

Career: IIT Kanpur: Lecturer 86–87, Asst Prof. 87–91, Assoc. Prof. 91–95, Prof. 95-2003; NIIST, Trivandrum; NISER, Bhubaneswar: Dir 2003–.

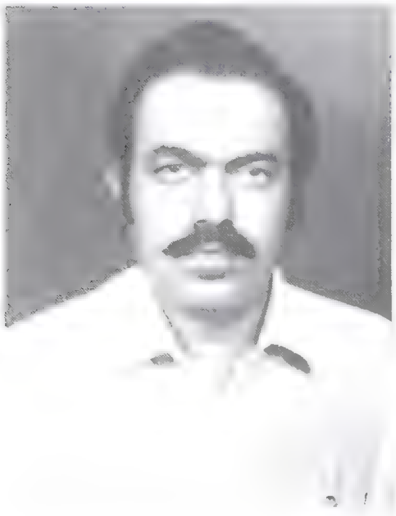
Scientific Work: Has made significant contributions in molecular receptors for neutral, cationic and anionic substrates, photosensitizer for photodynamic therapy, model compounds for photosynthetic intermediates, catalysts for organic conversions, supramolecular systems for molecular devices and nonlinear optical materials. Most of his work is concerned with the development of easy and efficient synthetic methodologies for a range of porphyrins, modified porphyrins and expanded porphyrins. Furthermore, the electronic structural changes were elucidated by using spectrospoic, electrochemical and magnetic resonance techniques. After the synthetic methodology is optimized and complete characterization, these materials were tried for their applications as anion receptors, NLO materials and photosensitizer for PDT.

Important Publications: **(1)** Structural diversity in expanded porphyrins (2008) *Acc. Chem. Res.* **41**, 2, 265–279. **(2)** 22π Smaragdyrin molecular conjugates with aromatic phenylacetylenes and ferrocenes; syntheses, electrochemical and photonic properties (2006) *J. Am. Chem. Soc.* **28**, 50, 16083–16091. **(3)** Aromatic core modified expanded porphyrins: A strategy towards third-order nonlinear optical response (2005) *J. Am. Chem. Soc.* **127**, 33, 11608–11609. **(4)** Sapphyrin supramolecules through C-H..S and C-H..Se hydrogen bonds—First structural characterisation of meso aryl sapphyrins bearing heteroatoms (1998) *Angew Chem., Int. Ed. Engl.* **37**, 24, 3394–3397. **(5)** Tetrathia and tetraoxa-rubyrin: A new aromatic core modified expanded porphyrin: (1997) *Angew. Chem., Int. Ed. Engl.* **36**, 23 2598–2601.

Memberships: Fellow: NASI 96: INSA 2002; TWAS 2008.

Awards & Distinctions: Homi Bhabha Award for Excellence in Research 93 • CRSI Bronze Medal 2000 • S S Bhatnagar Prize 2001 • ICS, Kolkata P Ray Memorial Research Award 2002 • Chemito Award 2003 • J C Bose Natl Fellowship 2006 • CRSI Silver Medal 2008 • Platinum Jubilee Lecture Award, Indian Science Congress: 2008.

Chandrashekaran, Maroli Krishnayya*



Elected: 1983
Specialization: Chronobiology; Animal Behaviour
Date and Place of Birth: 4 January 1937; Salem, Tamil Nadu
Parents: Murali Krishnayya and Rukmini
Spouse and Children: Shashikala; two *d* (Sujata, Sonali)
Last address: Evolutionary and Organismal Biology Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560 064, India
***Deceased:** 2 July 2009

Education: Madras Univ.: BSc 58, MSc 60, PhD 64; Madurai Univ.: DSc 85.

Career: Univ. of Tubingen, German Acad. Exch Serv Scholar: Postdoc Res. 64–65; Alexander von Humboldt Scholar 65–67; Univ. of California: Miller Res. Fellow 68–70; Madurai Univ., School of Biological Sci.: Reader 75–80; Dept of Animal Behaviour & Physiology: Prof. & Head 80–96; Fulbright Vis. Prof. 83; Univ. of Wales, Cardiff: Vis. Professorial Fellow 90; JNCASR,Bangalore: ASTRA Res.Prof. 96–2009.

Scientific Work: Rediscovered tidal (lunar) and circadian rhythms in the behaviour and physiology of an inter-tidal crab. Elucidated in detail and analysed the role of white and monochromatic light in entrainment and phase shifting of circadian rhythms in *Drosophila*, three species of Indian microchiropteran bats and the palm squirrel. Demonstrated that social (conspecific cues) entrain the circadian rhythm of a bat inside a natural cave and that the mother mouse can indicate time of day and night behaviourally to her pups. Investigating the circadian rhythms in physiological processes, the menstrual cycle and estimation of passage of time by humans living under social isolation for prolonged periods of up to 43–45 days. Demonstrated that there are 'circadian consequences to the evolution of a circadian organization' in ants (*Camponotus compressus*). Different castes of ants have different clocks, which they can change according to the developmental role they play in the colony, even during ontogeny. Worker ants, which live below ground in perpetual darkness do not possess any trace of circadian organization. Set up in 1996 the EOBU is the only biggest research outfit of its kind in India.

Important Publications: **(1)** Studies on phase shifts in endogenous rhythms: Effects of light pulses on the eclosion rhythms in *Drosophila pseudoobscura* (1967) *Zeitschrift fuer vergleichende Physiologie* **56**, 154–162. **(2)** Possible 'dawn' and 'dusk' roles of light pulses shifting the phase of a circadian rhythm. (1973) *J. Comparative Physiol.* **A 82**, 347–356. **(3)** Social entrainment of the circadian rhythm in the flight activity of the microchiropteran bat *Hipposideros speoris* (1981) *Behav. Ecol. Sociobiol.* **8**, 147–150. **(4)** Cycles of presence and absence of mother mouse entrain the circadian clocks of pups (1985) *Nature* (London) **317**, 530–531 **(5)** *Circadian rhythms, menstrual cycles and time sense in humans under social isolation in evolution of circadian clocks* (1994) Hokkaido University Press Sapporo, pp. 263–274.

Memberships: Fellow: INSA 88; NASI 91; TWAS 95 • Member: Intl Soc. for Chronobiology; USA Soc. for Light Treatment and Biological Rhythms; Intl Soc. for the Study of Time.

Awards & Distinctions: S S Bhatnagar Prize 79 • J C Bose Award in Life Sciences 89 • Aschoff's Rule Prize in Chronobiology (first recipient of this international Prize) Munich, Germany 91 • Millenium Plaque of Honour, ISCA 2007.

Chandru, Vijay

Elected: 1996
Position: Chmn, Strand Life Sciences, Bangalore
Specialization: Computational Mathematics; Computational Biology
Date and Place of Birth: 7 June 1953; Madras, Tamilnadu
Parents: H G Vijayaraghava Reddy and Vijayalakshmi
Spouse and Children: Uma, one *d* (Maya Ragini)
Address: 237, Sir C V Raman Avenue, Raj Mahal Vilas, Bangalore 560 080, India
Tel. (080) 2361 8992-5 (O), (080) 2361 5038 (R), Mobile: 98452 02820
email: chandru@alum.mit.edu; URL: http://www.houseofalgorithms.org/residence.html

Education: BITS Pilani: BE (Hons) 75; Univ. of California: MS 77; Massachusetts Institute of Technology: PhD 82.

Career: Purdue Univ.: Asst Prof. 82–92; IISc, Bangalore: 92–2005; Strand Life Sci.: 2000–.

Scientific Work: Has worked in several aspects of computational mathematics and its applications in operations research, manufacturing and more recently in biology. Specific original contributions include results in the computational complexity of combinatorial optimization problems, geometric embeddings of logical inference, machine learning and pattern recognition, and algorithms in combinatorial and algebraic geometry.

Important Publications: **(1)** *Optimization methods for logical Inference* (1999) Wiley Interscience series in discrete mathematics and optimization. **(2)** Mathematical programming embeddings of logic (2002) *J. Autom. Reasoning* **29**, 1, 91–106. **(3)** The algorithmics of folding proteins on lattices. Discrete applied mathematics (2003) **127**, 1, 145–161 **(4)** Improper intersection of algebraic curves (1990) *A.C.M. Transactions on Graphics* **9**, 2, 147–159. **(5)** Algorithms for the design of optimal discrete neural networks (1995) *Proc. of the Sixth ACM/SIAM Symposium on Discrete Algorithms,* SIAM Press.

Memberships: IEEE; INFORMS; IARCS.

Awards & Distinctions: Dewang Mehta Prize for Innovation in Information Technologies, MCIT, Govt of India 2002 • UGC Hari Om Trust Award 2003 • AstraZeneca Chairman's Award for Entrepreneurship and Innovation 2004 • INFORMS President's Medal 2006 • Bio-Entrepreneur of 2007, BioSpectrum Magazine (India) Technology Pioneer, World Economic Forum 2006.

Chandy, Jacob*

Elected: 1960
Specialization: Neurology; Neurosurgery; Medical Education
Date and Place of Birth: 23 January 1910; Kottayam, Kerala
Parents: M J Chandy and Accamma
Spouse and Children: Accamma Verghese; two *s*, one *d*
Last Address: Paarra, Matteethra, Kottayam 686 004, Kerala, India
***Deceased:** 23 June 2007

Education: Madras Univ.: BSc 31, MBBS 36; Pennsylvania Univ., USA: MSc 45; Univ. of Canada: FRCS 47.

Career: Mission Hospital, Bahrain: Surgeon-in-Charge 39–44; Montreal Neurological Inst.: Fellow 45; Christian Medical College, Vellore, Dept of Neurology & Neurosurgery: Assoc. Prof. 49–54, Prof. 54–,Medical Supdt 54–, Head, Medical Superintendent, Principal 49–70.

Scientific Work: Pioneer of neuro-surgery in South India. Has contributed several outstanding papers on the nature and prevalence of neurological conditions. Established neuro-surgery section of the Christian Medical College, Vellore and thereby attained recognition for it as a prominent neuro-surgical centre in India.

Memberships: Member: Intl League against Epilepsy; Intl Panel of Multiple Sclerosis Soc.; American Neurological Assn; Soc. of British Neurological Surgeons; Congress of Neurological Surgeons; Christian Medical Commission of World Council of Churches • Fellow: Canada Royal College of Surgeons 47; Intl College of Surgeons 49; Indian Acad. of Medical Sci.; American College of Surgeons 49; Montreal Neurological Institute.

Awards & Distinctions: Padma Bhushan 64 • World Federation of Neurology and Neurosurgery Medal of Honour 89.

Chandy, Mammen

Elected: 2008
Position: Prof., CMC Hospital, Vellore
Specialization: Hematology; Bone Marrow Transplantation; Molecular Genetics of Blood Diseases
Date and Place of Birth: 30 August 1949; Malapally, Kerala
Parents: T P Chandy and Aleyamma
Spouse and Children: Anu; two *s* (Ajit, Ashok)
Address: Hematology Department, CMC Hospital, Vellore 632 004, India
Tel. (0416) 228 2169 (O), (0416) 226 3543 (R), Mobile: 98944 81640
email: mammen@cmcvellore.ac.in

Education: Madras Univ.: MBBS 71, MD 78.

Career: CMC: Jr Lecturer 79–80, Lecturer 80–83, Reader 83–85, Assoc. Prof. 85–87, Prof. 87; Westmead Hospital, Australia: Registrar 80–82; Sultan Qaboos Univ. Hospital, Muscat: Prof. 94–96.

Scientific Work: Molecular diagnosis of thalassemia; Bone marrow transplantation for thalassemia; Evaluation of conditioning regimens for bone marrow transplantation and pharmacokinetics of busulfan; DNA fingerprinting for assessment of chimerism.

Important Publications: **(1)** Childhood acute lymphoblastic leukaemia in India: An approach to management in a three-tier society (1995) *Med. Pediatr. Oncol.* **25**, 197–203. **(2)** Management of haemophilia in developing countries with available resources (1995) *Haemophilia* **1** (suppl.1), 44–48. **(3)** Allogeneic bone marrow transplantation in the developing world: Experience from a center in India (2001) *Bone Marrow Transpl.* **27**, 785–790. **(4)** Randomized trial of two different conditioning regimens for bone marrow transplantation in thalassemia – the role of busulfan pharmacokinetics in determining outcome (2005) *Bone Marrow Transpl.* **5**, 1–7. **(5)** Developing an algorithm of informative markers for evaluation of chimerism after allogeneic bone marrow transplantation (2006) *Bone Marrow Transpl.* **37**(8), 751–755.

Memberships: Fellow: Royal College of Physicians of Australasia 85; Royal Australasian College of Pathologists 85.

Awards & Distinctions: Kutumbiah Gold Medal in Medicine • John S Carman Medal in Surgery • TCF Medal in Paediatrics • IDA Scudder Medal in Obstetrics and Gynaecology • Manorama Sapre Oration, Indian Soc. of Haematology and Blood Transfusion, Bombay 93.

Chariar, Veeraraghava Ranga*

Elected: 1949
Specialization: Differential Geometry; Analysis; Theory of Numbers
Date and Place of Birth: May 1903; Bero, West Bengal
Parents: Veera Raghavachari and Sundaravalli Ammal
Spouse and Children: Rangamani Ammal; one *s*, three *d*
Last Address: c/o K R Rajagopalan, 927, H–110, 16th Main Road, Annanagar West, Madras 600 040, India
***Deceased:** 31 July 1996

Education: Univ. of Patna: BSc Hons 25, MSc 27, DSc 53.

Career: Bihar Educational Service: Prof. 59–60, Prof., Head 60–64.

Scientific Work: Constructed the integral function with the Picard exception and derived some conclusions. Introduced an invariant μ-skewness of distribution and indicated construction of surfaces in differential geometry. Found out the recurrence formula, the number and location of the real zeros in generalized Jacobi polynomials. In a paper on ruled Wiengarten surfaces, it was found that it must be a plain or right circular cone or squareroot of $-K$ to satisfy a cubic equation so that there is always a real Wiengarten surface.

Chattaraj, Pratim Kumar

Elected: 2001
Position: Prof., Head of the Dept of Chemistry, IIT Kharagpur
Specialization: Density Functional Theory; Non-linear Dynamics; Chemical Reactivity
Date and Place of Birth: 26 April 1958; Rajudi, West Bengal
Parents: Kshitish Chandra Chattaraj and Lila
Spouse and Children: Samhita; one *d* (Saparya)
Address: Department of Chemistry, Indian Institute of Technology, Kharagpur 721 302, India
Tel. (03222) 28 3304, (03222) 28 2252, (O), (03222) 28 3305 (R)
email: pkc@chem.iitkgp.ernet.in, pratim.chattaraj@gmail.com
URL: http://www.chem.iitkgp.ernet.in/faculty/pkc/web/index.php

Education: Burdwan Univ.: BSc 79, MSc 82; IIT Bombay: PhD 87.

Career: IIT Kharagpur: Lecturer 88–90, Asst Prof. 90–96, Assoc. Prof. 96–2003, Prof. 2003–; Head, Dept of Chemistry and Convener, Centre for Theoretical Studies Vis. Prof.; Univ. of North Carolina, USA: Postdoc 90, 94–95; Inst. Org. Chem. Erlangen–Nurenberg, Germany: 92; Dep de Fisica, Fac de Ciencias, Univ de Chile, Santiago, Chile 99; Dep de Quimica Fisica, Fac de Quimica, Pontificia Univ, Catolica de Chile, Santiago, Chile 2000; Dep de Quimica, Univ Autonoma Metropol Izatapalapa, Mexico DF 99, 2003–04; Univ Michoacana de San Nicolas de Hidalgo Morelia, Mexico 2003; CSIC, IMAFF, Madrid, Spain 2006; Ghent Univ, Belgium: 2006.

Scientific Work: A chemical reaction dynamics is developed within a quantum fluid density functional framework through the dynamics of various global and local reactivity descriptors. Their variation along the reaction path is studied *ab initio*. A stable state or a favourable process is shown to be associated with maximum hardness and entropy values and electrophilicity minimum polarizability values. It is shown that the ground state of a system is harder and less polarizable than any of its excited states. A generalized philicity concept is developed which contains hitherto known all information regarding reactivity and selectivity. A net electrophilicity scale is provided. The validity of different electronic structure principles is tested through DFT and other *ab initio* calculations of hardness and polarizability associated with molecular vibrations, internal rotations and different types of chemical reactions in both gas and solution phases. These concepts are shown to be useful in analyzing aromaticity and toxicity as well as in locating transition states. Quantum potential based approaches are used successfully to understand the quantum domain behaviour of different classically chaotic oscillators, field induced quantum tunnelling and Rydberg atoms in external fields.

Important Publications: **(1)** Chemical reactivity and selectivity: Local HSAB principle versus frontier orbital theory (2001) *J. Phys. Chem.* **A105**, 511. **(2)** HSAB principle applied to the time evolution of chemical reactions (2003) *J. Am. Chem. Soc.* **125**, 2705. **(3)** Philicity: A unified treatment of chemical reactivity and selectivity (2003) *J. Phys. Chem.* A *Communication* **107**, 4973. **(4)** Perennial review: Update 1 of 'Electrophilicity Index', *Chem. Rev.* **106**, 2065; (2007) *Chem. Rev.* **107**, PR46.

Memberships: American Chem. Soc.; IUPAC; ISTCP • Fellow: INSA, NASI 2009.

Awards & Distinctions: INSA Young Scientist Medal • IASc Assoc. 90–93 • CRSI Medal • B M Birla Award • B C Deb Memorial Award • Editorial Board Member, *J. Chem. Sci.*, *J. Mol. Struct.* (Theocherm).

Chatterjee, Asima*

Elected: 1975
Specialization: Natural Products; Reaction Mechanism; Stereochemistry; Synthetic Studies
Date and Place of Birth: 23 September 1917; Calcutta
Parents: Indra Narayan Mukherjee and Kamala Devi
Spouse and Children: Baradananda Chatterjee; one *d*, (Julie Banerji)
Last Address: Department of Chemistry, University College of Science, 92, APC Road, Calcutta 700 009, India
***Deceased:** 22 November 2006

Education: Calcutta Univ.: BSc 36, MSc 38, DSc 44

Career: Lady Brabourne College, Calcutta, Dept of Chem.: Prof & Head 40–54; Calcutta Univ., Dept of Pure Chem.: Hon. Lecturer 44–53; Reader 54–61, Khaira Prof. of Chem. 62–82, Head, Dept of Chem. 69–80, Dean, Faculty of Sci. 69–77; USA Watumull Fellowship 48–49.

Scientific Work: Initiated chemical investigation of alkaloids in *Rauwolfia canescens*. Investigated the chemistry of almost all principal types of indole alkaloids. Contributions with regard to elucidation of structure and stereochemistry of ajmalicine and sarpagine. First suggested stereo-configuration of sarpagine. Isolated and characterized geissoschizine, a key precursor in biogenesis of indole alkaloids from *Rhazya stricta*. Carried out synthetic studies on a number of complex indole alkaloids, quinoline and isoquinoline alkaloids. Developed simplified and normal procedure for preparation of required beta-phenylethanolamines in connection with alkaloid synthesis. Elucidated the structure of luvangetin isolated from *Luvanga scandens*. Studied the action of various Lewis acids on prenylated coumarins and devised simple synthetic routes to a number of complex coumarin systems. Investigated mechanism of acid-catalysed hydramine fission of beta phenylethanol amines. Introduced use of periodic acid as a reagent for detection and location of both terminal and exocyclic double bonds in organic compounds.

Important Publications: **(1)** *Treatise on Indian medicinal plants*, 6 vols (1991, 1992, 1994, 1995, 1997, 2001) NISCAIR, New Delhi **(2)** Chemistry of plant products (1955) *Annu. Rev. Biochem. Allies Res. in India*. **26**.

Memberships: Fellow: INSA 61 • Member: Sigma XI (USA); Indian Chemical Soc.; Indian Assn for the Cultivation of Sci.; Indian Sc. Congress; London Chemical Soc.; Rajya Sabha 82–84, 84–90.

Awards & Distinctions: S S Bhatnagar Prize 61 • Padma Bhushan 75 • UGC C V Raman Award 85. Indian Chem. Soc. P C Ray Award 74 • Pres. ISCA 75 • Univ. of Burdwan, BHU, Univ. of Wisconsin, USA; Univ. of Zurich, Switzerland: DSc hc.

Chatterji, Dipankar

Elected: 1994
Position: Prof., IISc, Bangalore
Specialization: Molecular Biology; Biophysical Chemistry; Biomolecular Spectroscopy
Date and Place of Birth: 20 April 1951; Calcutta, West Bengal
Parents: P N Chatterji and Rekha
Spouse: Prabha
Address: Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2836;(080)-2360 0137 (O), (080) 2539 2055 (R)
email: dipankar@mbu.iisc.ernet.in

Education: Jadavpur Univ., Calcutta: BSc 70, MSc 73; IISc, Bangalore: PhD 77.

Career: Univ. of Hyderabad: Asst Prof. 78–80; Suny, USA: Sr Res. Assoc. 80–83; Centre for Cellular and Molecular Biol., Hyderabad: Sci. 83–98; BHU, Varanasi: Assoc. Prof. 86–87; IISc, Bangalore: Prof. 99–; National Inst. of Genetics, Japan: Vis. Prof.

Scientific Work: Demonstrated the role of intrinsic metal ions of enzyme RNA polymerase in specific transcription. Mapped the active site of the enzyme, while deciphering the mechanism of initiation of transcription at supercoiled promoters along with colleagues. Established the structure-function relationship in the transcription factor sigma-70.

Important Publications: **(1)** *Methods Enzymol.* (1996) **274**, 456. **(2)** Infect. Immun. (2000) **68**, 4084. **(3)** *Curr. Opin. Microbiol.* (2001) **4**, 160 **(4)** *Trends Microbiol.* (2006) **14**, 450 **(5)** *Langmuir* (2007) **2**, 2037.

Memberships: Fellow: NASI 89; INSA 97; TWAS 2007.

Awards & Distinctions: S S Bhatnagar Prize 92 • Homi Bhabha Fellow 92–94 • Ranbaxy Award • Millennium Gold Medal • J C Bose Fellow • Hari Om Ashram Award (UGC)

Chattopadhyay, Amitabha

Elected: 2000
Position: Prof., Dy Dir CCMB, Hyderabad
Specialization: Membrane Biology; Molecular and Cellular Neurobiology; Fluorescence Spectroscopy & Microscopy
Date and Place of Birth: 9 October 1956; Calcutta, West Bengal
Parents: Rajendra Narayan Chatterjee and Bedangini
Spouse: Devashree
Address: Centre for Cellular and Molecular Biology, Uppal Road, Hyderabad 500 007, India
Tel. (040) 2719 2578, 2716 0222 (O), (040) 2701 5197 (R)
email: amit@ccmb.res.in

Education: Univ. of Calcutta: BSc 77; IIT Kanpur: MSc 80; State Univ. of New York, USA: PhD 87.

Career: Univ. of California, USA: Postdoc Fellow 87–89; CCMB: Sci. 89–, Dy Dir 2004–; Univ. of California, USA: Vis. Assoc. 92; The John Hopkins Univ., USA: Vis. Faculty 97; Univ. of Kaiserslautern: Vis. Prof. 99, 2003; Univ. of Melbourne, Australia: Vis. Prof. 2003; Ben-Gurion Univ. of the Negev, Israel: Dozor Vis. Prof. 2007.

Scientific Work: Work focussed on monitoring organization, dynamics and function in biological membranes in healthy and diseased conditions. Group has made pioneering contribution on the role of membrane lipids in regulating the function of G-protein coupled receptors (GPCR). For the first time, showed that membrane cholesterol is essential for the function of the serotonin-1A receptor. Subsequently, showed that the activity of the serotonin-1A receptor is impaired in pathogenic conditions such as the Smith–Lemli–Opitz syndrome (SLOS). Another seminal contribution is the role of membrane cholesterol in leishmanial infection. Group has developed and applied novel, innovative and sensitive techniques using fluorescence spectroscopy for monitoring solvent relaxation in membranes and membrane-mimetic media. These pioneering biophysical studies have helped to develop a better understanding of the dynamics of hydration of membranes and proteins.

Important Publications: **(1)** Fluorophore environments in membrane-bound probes: A red edge excitation shift study (1993) *Biochemistry* **32**, 3804–3811. **(2)** Membrane organization at low cholesterol concentrations: A study using 7-Nitrobenz-2-oxa-1,3-diazol-4-yl-labelled cholesterol (1996) *Biochemistry* **35**, 1311–1322. **(3)** Cholesterol is required for *Leishmania donovani* infection: Implications in Leishmaniasis (2004) *Mol. Biochem. Parasitol.* **133**, 145–152. **(4)** Cholesterol modulates ligand binding and G-protein coupling to serotonin-1A receptors from bovine hippocampus (2004) *Biochim. Biophys. Acta* (Biomembranes) **1663**, 188–200. **(5)** G-protein-dependent cell surface dynamics of the human serotonin-1A receptor tagged to yellow fluorescent protein (2004) *Biochemistry* **43**, 15852–15862.

Memberships: Fellow: NASI 98; INSA 2005; Biophysical Soc., USA Intl Soc. for Neurochemistry Soc. of Biological Chemists, India; Indian Soc. of Cell Biology; Indian Biophysical Soc.; Indian Photobiology Soc.; Indian Acad. of Neurosciences; Soc. for Neurochemistry, India; Indian Peptide Soc.; Indian Sci. Congress Assn.

Awards & Distinctions: Devaprabhakara Memorial Award 79 • Sreenivasayya Memorial Award 2000 • S S Bhatnagar Prize 2001 • Ranbaxy Research Award • Bires Chandra Guha Memorial Lecture (INSA) Award • J C Bose Fellowship 2008

Chattopadhyay, Dhrubajyoti

Elected: 2004
Position: Prof, Univ. of Calcutta
Specialization: Transcription; Molecular Urology; Molecular Virology ; Oxidative Stress Response
Date and Place of Birth: 11 May 1954; Calcutta, West Bengal
Parents: Kshetragopal Chattopadhyay and Mukti
Spouse and Children: Ratna; two *d*
Address: Department of Biotechnology, University of Calcutta,
35, Ballygunge Circular Road, Kolkata 700 019, India
Tel. (033) 2257 1470 (O), (033) 2334 9382 (R), Mobile: 98310 83791
email: djcbcg@caluniv.ac.in

Education: Calcutta Univ.: BSc 73, MSc 75, PhD 84.

Career: Bose Inst. Kolkata: Res. Fellow 71–81; Jogamaya Devi College, Kolkata: Lecturer 81–83; Calcutta Univ.: Lecturer 83–91, Sr Lecturer 91–96, Reader 96–97, Guha Prof. 97–, Pro Vice Chancellor(Academic).

Scientific Work: Understanding the basic molecular circuitries beneficial for the viral multiplication process with special emphasis on the transcription-replication switch studied the types of non-cultivable microorganisms present in the East Kolkata wet-land area, and also identification of the important bio-molecules that are synthesized by non-cultivable fraction of microbial consortia.

Important Publications: **(1)** Phosphorylation within a specific domain of the phosphoprotein of vesicular stomatitis virus regulates transcription *in vitro* (1987) *Cell* **49**, 407. **(2)** A genetically engineered chimeric phosphoprotein supports transcription of vesicular stomatitis virus genome RNA *in vitro* (1988) *PNAS* (USA) **85**, 7977. **(3)** Single serine phosphorylation within the acidic domain of Chandipura virus P protein regulates the transcription of *in vitro* (1997) *Virology*, **213**, 11–19. **(4)** Effect of osmolytes and chaperone-like action of P-protein of Chandipura virus (2001) *J. Biol. Chem.* **276**, 30948–30955. **(5)** Mild synthesis of a family of planar triazinium cations via proton-assisted cyclization of pyridyl containing azo compounds and studies on DNA intercalation (2008) *J. Am. Chem. Soc.* **130**,15, 5185–93.

Memberships: NASI 97 • Member Soc. of Biological Chemists, India; Indian Biophysical Soc.; Biotechnology Soc. of India.

Awards & Distinctions: Prof. Umakant Sinha Memorial Award 92 • UNESCO-IUMS-MIRCENS-SGM Fellowship 99.

Chattopadhyay, Joydev

Elected: 2008
Position: Prof., ISI, Kolkata
Specialization: Mathematical Modelling on Ecology and Epidemiology; Eco-epidemiology
Date and Place of Birth: 29 November 1963; Bankura, West Bengal
Parents: Sahadev Chattopadhyay and Binapani
Spouse and Children: Dalia; two s
Address: Agricultural & Ecological Research Unit, Indian Statistical Institute, 203, B T Road, Kolkata 700 108, India
Tel. (033) 2575 3231 (O), (033) 2553 9920 (R), Mobile: 98305 46490
email: joydev@isical.ac.in

Education: Burdwan Univ.: BSc 85; Jadavpur Univ.: MSc 87; PhD 93; PG Diploma in Computer Applications 89.

Career: ISI: Lecturer 97–2003, Assoc. Prof. 2003–08, Prof. 2008–.

Scientific Work: Work has enhanced the understanding of marine ecosystems and epidemiology of infectious diseases. Has provided novel and unified approaches to the study of biological systems through mathematical modelling and data analyses. Although ecology and epidemiology are treated as independent scientific areas, has discovered significant commonalities and proposed a unified model. Shown theoretically and empirically that infection in the prey population acts as a natural biological control for the persistence of both the predator and the prey species. In marine ecosystems, algal populations often reach unusually high biomass levels leading to deleterious consequences for several organisms. This is termed as harmful algal blooms. Contributed to a deeper understanding of the formation and control of such blooms by a novel and integrated approach of data collection, experimentation and mathematical modelling. From analysis of field data and by developing mathematical models (with deterministic and stochastic arms), established an alternative theory that toxin-producing plankton may act as a natural biological control for termination of planktonic blooms. Recently, resolved two long-standing paradoxes in ecology and provided specific solutions.

Chattopadhyay, Kamanio

Elected: 1995
Position: Prof., Chmn, Dept of Materials Engg, IISc, Bangalore
Specialization: Physical Metallurgy; Materials Science & Engineering
Date and Place of Birth: 3 March 1950; Mortacca, Madhya Pradesh
Parents: Mukul K Chatterji and Anupama Devi
Spouse: Sukanya
Address: Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 1991, 2293 2262 (O), (080) 2341 7660 (R)
email: kamanio@materials.iisc.ernet.in

Education: Burdwan Univ.: BE 71; BHU: MSc 73, PhD 78.

Career: BHU, Metallurgical Engg Dept: Lecturer 75–82; IISc, Bangalore, Dept of Metallurgy: Asst Prof. 83–88 Assoc. Prof. 88–94, Prof. 94–.

Scientific Work: Worked on synthesis of new materials by nonequilibrium processing including the early reports on aluminium-based metallic glass and metastable phases, discovery of one- and two- dimensional quasicrystals as well as possibility of ordering and approximant phases. Continuing work to solve the bainite controversy in solid state transformation. Extensive experimental studies on the phenomenon of immiscibility including the role of critical points in the evolution of ordering and clustering in solid state, liquid state immiscibility and the morphology development with increasing departure from equilibrium. Current studies include synthesis and transformations in nano-scaled stable and metastable materials including the phenomenon of superheating, heterogenous nucleation and the problem of evolution of equilibrium and growth shapes.

Memberships: Fellow: INSA 96; NASI 99; INAE.

Awards & Distinctions: J C Bose Natl Fellow • INSA Young Sci. 79 • Homi Bhabha Fellowship 87 • National Metallurgical Day Award 89.

Chattopadhyay, Sudip

Elected: 2009
Position: Prof., Sci., National Ctr for Plant Genome Res., New Delhi
Specialization: Plant Molecular Biology (Signal Transduction)
Date and Place of Birth: August 1, 1960; Durgapur, West Bengal, India
Parents: Sailendranath Chattopadhyay
Spouse and Children: Sudeepa; one *s*
Address: National Centre of Plant Genome Research, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2673 5175 (O), 011 2673 5144 (R), Mobile: 98184 04216
email: sudip.chattopadhyay@nipgr.res.in

Education: Burdwan Univ., West Bengal: BSc (Hons) 84; Kalyani Univ., West Bengal: MSc 87; Calcutta Univ.: PhD 93.

Career: Univ. of Michigan, USA: Postdoc Res. Fellow 93–95; Yale Univ., USA: Res. Assoc., 95–98. Purdue Univ., USA: Res. Assoc., 98–2000; ICGEB, New Delhi: Sr Res. Sci., 2000; NIPGR, New Delhi: Assoc. Prof.2000–03, Sr Assoc. Prof. 2003–07, Prof. 2007–.

Scientific Work: Has been investigating light-controlled plant development using *Arabidopsis*, tomato, chickpea and carrot plants. Group has cloned and functionally characterized several novel transcription factors (ZBFs) and regulatory proteins that play important roles from early seedling development to flowering plants. Very recently demonstrated for the first time that ZBF1/MYC2 transcription factor can cross-talk among three signal transduction pathways such as light, ABA (abscisic acid) and JA (jasmonic acid) in plants. Cloned and generated transgenic tomato and carrot plants over- or under-expressing ZBF1 and ZBF2 transcription factors. Recently cloned a novel gene from chickpea (SHW1) and functionally characterized by mutational and transgenic studies. Currently investigating the mechanism of action of ZBFs among themselves and with other regulatory proteins in plant growth and development.

Important Publications: **(1)** GBF1, a transcription factor of blue light signalling in *Arabidopsis*, is degraded in the dark by a proteasome-mediated pathway independent of COP1 and SPA1 2000 (2008) *J. Biol. Chem.* **283**, 35772–35782 **(2)** CAM7 plays a crucial role as transcriptional regulator in *Arabidopsis* seedling development. (2008) *Plant Cell* **20**, 1747–1759. **(3)** Short hypocotyl in white light (SHW1), a serine-arginine-aspartate rich protein in *Arabidopsis*, acts as a negative regulator of photomorphogenic growth (2008) *Plant Physiol.* **147**;169–78. **(4)** A basic leucine zipper transcription factor, G-box binding factor 1, regulates blue light-mediated photomorphogenic growth in *Arabidopsis* (2006) *J. Biol. Chem.* **281**, 22190–22199. **(5)** A basic helix-loop-helix transcription factor in *Arabidopsis*, MYC2, acts as a repressor of blue light-mediated photomorphogenic growth (2005) *Plant Cell* **17**, 1953–1966.

Memberships: Fellow: NASI 2006; INSA 2007 • Elected Member: Guha Res. Conf.

Awards & Distinctions: National Bioscience Award 2005 • Ramanna Fellow, DST 2007.

Chaturvedi, Subhash

Elected: 1998
Position: Prof., Univ. of Hyderabad
Specialization: Mathematical Physics; Quantum Optics; Quantum Information; Computation
Date and Place of Birth: 8 December 1950; Indore, Madhya Pradesh
Parents: Sunderlal Chaturvedi and Kamla
Spouse and Children: Anita; two s
Address: School of Physics, University of Hyderabad, Hyderabad 500 046, India
Tel. (40) 2313 4353 (O), (040) 2301 0744 (R)
email: scsp@uohyd.ernet.in

Education: Univ. of Indore: BSc 68, MSc 70; Univ. of Waikato, New Zealand: DPhil 77.

Career: Univ. of Stuttgart, Wissen Mitarb: 77–81; Univ. of Hyderabad: Commonwealth Academic Staff Fellow, 89–90 Fellow 81–85; Inst. of Math Sciences, Madras: Asst Prof. 85–87; Univ. of Hyderabad: Reader 87–93, Prof. 93–; Commonwealth Academic Staff Fellow 89–90; Imperial College, London: Vis. Prof. 2007–08.

Scientific Work: Scientific work over the last twenty five years has been in the area of general theoretical physics. A large part of work has stochastic processes, probability distributions, etc.; both classical as well as quantum, as the unifying theme. Principal achievements in this area have been: Positivization of a class of quantum phase space distributions, including the Wigner function and schemes to measure them; exact solution of a class of master equations describing coupled nonlinear oscillators; renormalization and regularization of stochastically quantized field theories; construction of the thermal generator in nonequilibrium thermo-field dynamics; calculation of the canonical partition functions for all statistics describing identical and indistinguishable particles; microscopic interpretation of fractional exclusion statistics. Besides these, has made contributions in the areas of quantum optics, coherent states, Berry's phase for coherent states, q-oscillators and quantum groups.

Important Publications: *Stochastic quantization of Parisi and Wu* (1990) Bibliopolis, Naples.

Chaturvedi, Umesh Chandra

Elected: 1986
Specialization: Medical Microbiology; Virology; Immunology
Date and Place of Birth: 2 March 1939; Unnao, Uttar Pradesh
Parents: S P Chaturvedi and Chandra
Spouse and Children: Uma; one *s*, two *d* (Jaideep, Preeti, Pratibha)
Address: 201, Annapurna Apartments, No. 1, Bishop Rocky Street, Faizabad Road, Lucknow 226 007, India
Tel. (0522) 232 2975 (R), Mobile: 94509 13506
email: professorucc@yahoo.com, ucc05@rediffmail.com

Education: Allahabad Univ.: BSc 56; Lucknow Univ.: MBBS 61, MD 65.

Career: Lucknow, K G Medical College: Demonstrator 61–64 , Res. Asst 64, Lecturer 64–65; ICMR: Res. Fellow 65–66, Lecturer in Virology 67, Reader 67–84, Prof. 84–97; Dept of Microbiology, Faculty of Medicine, Kuwait Univ.: Vis. Prof. 97–2001; Council of Scientific and Industrial Res., Industrial Toxicology Res. Centre, Lucknow: 2001–04; Bharat Immunologicals and Biologicals Corporation Ltd (a Govt of India undertaking), New Delhi: Emeritus Sci., Chmn 2003–06; INSA Hon. Sci. 2008.

Scientific Work: Worked on Japanese encephalitis and dengue virus infection, delineated the immune response to the virus, discovered five virus-specific cytokines, and uncovered the mechanisms of the genesis of different pathological lesions in cases of dengue haemorrhagic fever/shock syndrome.

Important Publications: **(1)** Effect of neonatal thymectomy on experimentally produced immunologic cardiac lesions (1967). *Nature* (London) **216**, 267–268. **(2)** Transplacental infection with Japanese encephalitis virus (1980) *J. Infect. Dis.* **141**, 712–715. **(3)** Breakdown of the blood-brain barrier during dengue virus infection of mice (1991) *J. Gen. Virol.* **72**, 859–866. **(4)** Active immunization by a dengue virus-induced cytokine (1994) *Clin. Exp. Immunol.* **96**, 202–207. **(5)** Cytokine cascade in dengue haemorrhagic fever: Implications for pathogenesis (2000) *FEMS Immunol. Med. Microbiol.* **28**, 183–188.

Memberships: Fellow: NASI 87; INSA 87; NAMS London Royal College of Pathologists, American Acad. of Microbiologists.

Awards & Distinctions: S S Bhatnagar Prize 81 • O P Bhasin Award 91 • NII Sr Sci. Award 90 • B K Aikat Oration Award, Indian Assn. of Pathologists and Microbiologists 89 • J B Srivastava Award, ICMR 79 • Shakuntala Amirchand Prize ICMR 69 • Best Teacher of the K G Medical College Award, Lucknow.

Chaudhari, Raghunath Vitthal

Elected: 1992
Position: Deane E Ackers Distinguished Prof., Univ. of Kansas, USA
Specialization: Homogeneous Catalysis; Multiphase Reactors and Chemical Reaction Engineering; Kinetics and Mechanism
Date and Place of Birth: 17 April 1948; Asoda, Jalgaon
Parents: Vitthal and Parvatibai
Spouse and Children: Aruna; two *d*
Address: Chemical & Petroleum Engineering Department, University of Kansas, Lawrence, KS 66047-1803, USA
Tel. (1-785) 864 1756 1634 (O), (1-785) 856 1194 (R)
email: rvc1948@ku.edu

Education: Bombay Univ.: BSc Hons 68, PhD 74.

Career: Univ. of Edinburgh, UK, Dept of Chem. Engg: Postdoc Fellow 72–75; NCL, Pune: Sci. 76–2008, Asst Dir, Dy Dir and Head, Homogeneous Catalysis Group; Unite Mixte CNRS-Rhone Poulenc, France: Dir of Res. 90–91.

Scientific Work: Developed generalized theoretical approaches for analysis and design of multiphase catalytic slurry and trickle bed reactors. Worked on the use of predictive models and their experimental validation to a number of industrially important reactions has led to a scientific basis for design of three phase catalytic and gas-liquid reactors. Also developed models for exothermic gas-liquid and gas-liquid solid reactions, and role of partial wetting and stagnant liquid hold up in trickle bed hydrogenation reactors. Interest is focussed on investigations of reaction engineering aspects of gas-liquid-liquid catalytic reactions applicable for water soluble catalysis. Made important contribution to kinetics and mechanism of homogeneous catalytic carbonylation and hydroformylation reactions including molecular level approach. Developed novel metal complex catalyst for carbonylation reactions and particularly studied the nature of active catalytic species by isolation and characterization.

Important Publications: **(1)** *Three phase catalytic reactors* (1983) Gordon Publishers, New York. **(2)** Enhancement of interfacial catalysis in a biphasic system using catalyst binding ligands (1995) *Nature* **373**, 501–503. **(3)** Anchored Pd complex in MCM-41 and MCM-48: Novel heterogeneous catalysts for hydrocarboxylation of aryl olefins and alcohols (2002) *J. Am. Chem. Soc.* **124**, 9692–9693. **(4)** Heterogenized $HRh(CO)(PPh_3)_3$ in zeolite Y using phosphotungstic acid as tethering agent: A novel hydroformylation catalyst. (2003) *J. Catal.* **213,** 1, 73–77. **(5)** Modelling of a bubble column slurry reactor for hydrogenation of maleic acid: A mixing cell model (2003) *AIChE J.* **49,** 12, 3119.

Memberships: Fellow: INSA 2005; NAE; Maharashtra Acad. of Sci.

Awards & Distinctions: Vasvik Award 89 • K G Naik Gold Medal 93 • FICCI Award 2000–01.

Chaudhuri, Arabinda

Elected: 2008
Position: Sci. and Dir, IICT, Hyderabad
Specialization: Organized Surfactant Assemblies; Bio-organic Chemistry; Liposomal gene/drug Delivery Systems
Date and Place of Birth: 6 January 1958; Serampore, West Bengal
Parents: Keshab Lall Chaudhuri and Sabitri
Spouse and Children: Barnali; one *d* (Anwesha)
Address: Lipid Science & Technology Division, Indian Institute of Chemical Technology
Uppal Road, Hyderabad 500 007, India
Tel. (040) 2719 3201 (O), (040) 2715 6755 (R), Mobile: 94400 40582
email: arabinda@iict.res.in

Education: Univ. of Calcutta: BSc 78, MSc 82; Rutgers Univ., USA: PhD 91.

Career: Harvard Medical School: Postdoc Res. Assoc. 91–94; IICT: Sci. 94–, Project Leader 2003; Dy Dir. 2007.

Scientific Work: Has succeeded in designing a number of highly efficacious novel cationic amphiphiles with gene transfer efficacies superior to that of LipofectAmine, one of the most widely used commercially available liposomal gene transfer kits. Numerous structure-activity findings taken together, convincingly demonstrated that the gene transfer efficacies of cationic amphiphiles are sensitive even to minor modifications in their molecular architectures. Using Romsted's phenyl cation trapping technique, demonstrated that the local molar concentrations of nucleophiles in the water pool and the interfacial region correlates with the catalytic efficiencies of reversed micelle associated biocatalysts. More recently, has developed for the first time an α_5 β_1 integrin receptor specific RGDK-lipopeptide. The potential of this new RGDK-lipopeptide in antiangiogenic cancer therapy has been demonstrated by its efficiency in delivering genes to mouse tumour vasculature.

Important Publications: **(1)** Lipopeptide with a RGDK tetrapeptide sequence can selectively target genes to proangiogenic α_5 β_1 integrin receptor and mouse tumour vasculature (2008) *J. Med. Chem.* **51**, 7298–7302. **(2)** Covalent grafting of common tri-hydroxymethylaminomethane in the head-group region imparts high serum compatibility and mouse lung transfection property to cationic amphiphile (2008) *J. Med. Chem.* **51**, 67–71. **(3)** Dramatic Influence of the orientation of linker between hydrophilic and hydrophobic lipid moiety in liposomal gene delivery (2007) *J. Am. Chem., Soc.* **129**, 11408–11420. **(4)** Enhanced intravenous transgene expression in mouse lung using cyclic-head cationic lipids (2004) *Chemistry and Biology* **11**, 427–437. **(5)** Design, syntheses and *in vitro* gene delivery efficacies of novel mono-, di- and trilysinated cationic lipids: A structure-activity investigation (2004) *J. Med. Chem.* **47**, 2123–2132.

Chaudhuri, Haraprasad*

Elected: 1934
Specialization: Mycology and Plant Pathology
Date and Place of Birth: 28 July 1895; Calcutta, West Bengal
Parents: Janmajay Chaudhuri
Spouse and Children: Lotica Bose; Three *s*, two *d*
Last Address: Punjab University, Lahore
***Deceased:** 19 August 1945

Education: Calcutta Univ.: BSc 16, MSc; Univ. of London: PhD 22, DIC 22, DSc 39.

Career: Punjab Univ., Lahore, Dept of Botany: Reader 22–34, Prof. 34; Kashyap Res. Lab: Dir 34.

Scientific Work: Worked on a variety of fungi including soil, aquatic and coprophilous fungi, slime moulds, bacteria including bacterial diseases of wheat and mycorrhiza. Investigated the physiology of saltation in fungi and made interesting observations on mycorrhiza in *Marchantia nepalensis*. Isolated an endophyte and by inoculation experiment, showed that a reciprocal symbiosis exists. Published a report on citrus diseases in Punjab.

Important Publications: Nitrogen fixation in the rice-field soils of Bengal (1940) *Nature* **145**, 936–937.

Memberships: President: Indian Botanical Soc. 40.

Chaudhuri, Mihir Kanti

Elected: 1988
Position: Vice Chancellor, Tezpur Univ.
Specialization: Inorganic Chemistry; Synthesis, Structure and Reactivity; Newer Reagents; Methodologies
Date and Place of Birth: 21 July 1947; Shillong, Meghalaya
Parents: H C Choudhury and Asharani
Spouse and Children: Jaya; three *d*
Last Address: Tezpur University, Tezpur 784 028, India
Tel. (03712) 26 7003 (O), (03712)26 7115 (R), Mobile: 99544 49454
email: mkc@tezu.ernet.in; URL: www.tezu.ernet.in

Education: Univ. of Calcutta: BSc Hons 67; Univ. of Kalyani, West Bengal: MSc 69; IIT, Kharagpur: PhD 73

Career: IIT Kharagpur: Res. Fellow 70-72; Ruhr Univ., Germany: Post doc Fellow 73-76; NEHU, Shillong, Dept of Chem.: Lecturer 77–79, Reader 79–86, Prof. 86–97; IIT Guwahati: Prof. 97–2007; Tezpur Univ., Assam: Vice-Chancellor 2007–.

Scientific Work: Major achievements are in fluoro and peroxo (dioxygen) chemistry of metals and non-metals, acetylacetonatometals, and development of newer reagents. Developed several new synthetic methodologies and synthesized fluoro compounds of Be, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Bi, Zr, U and Th, as well as of B and P. Worked on fluoride-assisted stabilization of unusual oxidation levels of metals like Mn (III) and V (III). Synthesized and made structural assessment of dioxygen/peroxo complexes of Ti, V, Mo, Zr, U, Th and As and also of B and P, many of which have biochemical and photochemical relevance and some of which are important also from the magnetochemical and structural points of view. Synthesized large variety of metal acetylacetonates providing easy access to this class of highly useful compounds. Developed new reagents based on fluorochromates (VI) and peroxovanadates (V) for a variety of oxidations including selective oxidations of secondary alcohols in the presence of primary alcohols.

Memberships: Fellow: INSA 91.

Awards & Distinctions: Alexander von Humboldt Fellowship 74 • SS Bhatnagar Prize 89 • Chemists Award 2002 • Prof. P Natarajan Endowment Award 98 • S S Sandu Award 2005.

Chaudhuri, Probal

Elected: 2003
Position: Prof., ISI, Kolkata
Specialization: Robust & Non-Parametric Statistics; Statistical Computing; Statistical Methods in Pattern Recognition & Image Processing; Modelling and Analysis of Genomic Data
Date and Place of Birth: 21 November 1963; Calcutta, West Bengal
Parents: Nriperdra Chandra Chaudhuri and Jyotsna
Address: Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, 203, BT Road, Kolkata 700 108, India
Tel. (033) 2575 3414, (033) 2575 3400 (O), (033) 2558 0105 (R), Mobile: 98317 89429
email: probal@isical.ac.in; URL: www.isical.ac.in/~probal

Education: ISI, Calcutta: BStat 83, MStat 85, Univ. of California, Berkeley, USA: PhD 88.

Career: Univ. of Wisconsin, USA: Asst Prof. 88–90; ISI, Calcutta: Lecturer 90–93, Assoc. Prof. 93–97, Prof. 97–.

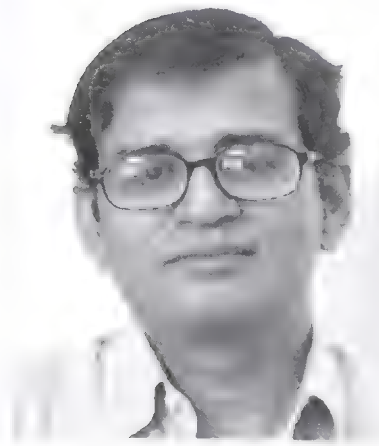
Scientific Work: Developed a geometric notion of quantiles for finite and infinite dimensional data. Introduced a data driven co-ordinate system and an adaptive transformation-retransformation technique for the analysis of multivariate data. Invented the SiZer map and a scale space approach in nonparametric statistical smoothing with applications in pattern recognition and image processing.

Important Publications: **(1)** Sign tests in multidimension: Inference based on the geometry of the data cloud. (1993) *J. Am. Stat. Assn.* **88**, 1363–1370. **(2)** On a geometric notion of quantiles for multivariate data. (1996) *J. Am. Stat. Assn.* **91**, 862–872. **(3)** On an adaptive transformation retransformation estimate of multivariate location (1998) *J. Roy. Stat. Soc.*, Series B, **60**, 145–157. **(4)** Sizer for exploration of structures in curves (1999) *J. Am. Stat. Assn.* **94**, 807–823. **(5)** Scale space view of curve estimation (2000) *Ann. Stat.* **28**, 408–428.

Memberships: Fellow: NASI 2007; INSA 2009; IMS, USA 2005.

Awards & Distinctions: IASc Assoc. 94–98 • B M Birla Science Award in Mathematics 2001 • C R Rao Natl Award in Statistics Govt of India 2005 • S S Bhatnagar Award 2005.

Chaudhuri, Subhasis



Elected: 2005
Position: Prof., IIT Mumbai
Specialization: Computer Vision; Image Processing
Date and Place of Birth: 1 March 1963; Bahutali, West Bengal
Parents: Nihar Kumar Chaudhuri and Santa
Spouse and Children: Sucharita; one *s*, one *d*
Address:, Department. of Electrical Engineering, Indian Institute of Technology, Powai, Mumbai 400 076, India
Tel. (022) 25767075,(022) 2576 7437 (O), (022) 2572 0351 (R)
email: sc@ee.iitb.ac.in; URL: http://www.ee.iitb.ac.in/~sc

Education: IIT Kharagpur: BTech 85; Univ. of Calgary, Canada: MSc 87; Univ. of California, San Diego: PhD 90.

Career: IIT Bombay: Asst Prof. 90–94, Assoc. Prof. 94–98, Prof. 98–.

Scientific Work: Contributed in the areas of depth recovery from defocussed images, image super-resolution and computational photography.

Important Publications: **(1)** *Depth from defocus: A real aperture imaging approach* (1999) Springer-Verlag, New York. **(2)** *Motion-free super-resolution* (2005) Springer, NY. **(3)** Transition detection in body movement activities for wearable ECG. (2007) *IEEE T. Biomed. Eng.* **54,** 6. **(4)** Qualitative visual environment retrieval, *IEEE T. Sys. Man & Cyb.* Part-B, **36**, 6, 1373–80 **(5)** A model-based approach to multiresolution fusion in remotely sensed images (2006). *IEEE T. Geosci. and Remote Sens.* **44**, 9, 2549–2562:

Memberships: Fellow: NASI 2003; INAE.

Awards & Distinctions: Om Prerit Vikram Sarabhai Award 2001 • S S Bhatnagar Prize 2004 • Swarna Jayanti Fellowship 2003 • J C Bose National Fellow 2008.

Chauhan, Birendra Singh*

Elected: 1952
Specialization: Helminthology; Parasitology; Systematic and General Zoology; Environmental Biology Wildlife; Fisheries; Evolution
Date and Place of Birth: 2 May 1915; Hoshangabad, Madhya Pradesh
Parents: C S Chauhan and Narmada Bai
Spouse and Children: Rama Bai; three *s*, one *d*
Last Address: Chhatra Chhaya, 220 Civil Lines, Narasinghpur 487 001, India
***Deceased:** 4 February 2007

Education: Univ. of Nagpur: BSc 37, MSc 39, PhD 44, DSc 56.

Career: College of Science, Nagpur: Res. Scholar 43-44; Indian Veterinary Res. Inst., ICAR Schemes, Izatnagar, Scholar Nagpur: Offr–in-Charge 44–45, 2001 Surv. of India Asst. Superintendent Zoologist 45–59, Superintendent Zoologist 59–68, Dy Dir 68–73; Zool. Survey of India; Sagar Univ.: Vice-Chancellor 73–75.

Scientific Work: First to start studies on monogenetic trematode parasites of Indian marine fishes from the Bombay coast. Guidelines revolutionized research on human schistosomiasis in India and resulted in the discovery of a new molluscan host *Feressia tunis* of the human blood fluke *Schistosoma haematobium*. Made a singular contribution in the discovery of a new intermediate mite host *Schlerobates chauhani* named after him by the famous American acrologist Baker in (1945) in the life history of the broad tape worm *Monazia spp* of goats, sheep & cattle.

Memberships: Fellow: Zoological Soc. of India; Helminthological Soc. of India; Acad. of Zoology; NASI.

Awards & Distinctions: Dr Bhalerao Memorial Gold Medal 62 • Sir Dorab Tata Gold Medal 75 • G S Jhapar Gold Medal 76.

Chauhan, Virander Singh

Elected: 1997
Position: Prof. and Dir, Intl Centre for Genetic Engg and Biotechnology, New Delhi
Specialization: Peptide Synthesis & Structure; Malaria Immunology; Malaria Drug Development
Date and Place of Birth: 3 March 1950; Agra, Uttar Pradesh
Parents: R S Chauhan and Rani Devi
Spouse and Children: Vibha Singh; two *d*
Address: International Centre for Genetic Engineering & Biotechnology,
NII Campus, Aruna Asaf Ali Marg, New Delhi 110 067
Tel. (011) 2674 2317, (011) 2674 1358 (O), (011) 2669 3040 (R)
email: virander@icgeb.res.in

Education: Delhi Univ.: BSc 69, MSc 71, PhD 75; Oxford Univ.: DPhil 77.

Career: St. Stephen's College: Lecturer 71–78; Oxford Univ.: Sr Scholar 74–77; Univ. of Georgia, USA: Postdoc 79–80; IIT Kanpur: Asst Prof. 80–81; Delhi Univ.: Prof. 82–87; ICGEB: Prof. 88–, Dir 98–.

Scientific Work: Two major research areas (a) Malaria vaccine and drug development and (b) Design, synthesis, structure determination and function of conformationally restricted peptide. Vaccine research and developments include characterization, validation and production of prominent vaccine target antigens from both human malaria *P. falcipurum* and *P. vivax*. Blood stage vaccine based on two prominent merozoite surface proteins has been developed and is ready for human trial. On going research includes discovery of novel malaria vaccine antigens. In the drug development area, focus is on understanding how antimalarials like chloroquine and artemisinin work and use that as a basis for further drug development. Research is also focussed on the development of high-throughput platforms to identify ant-malarials from natural sources. In peptides the interest is in the design and synthesis of conformationally restricted peptides which can mimic structures useful in drug-design and immunology. Structural studies with peptide models have shown that by introducing α, β-dehydrominoacids in peptide β-turn and 3_{10} or helical structures can be easily stabilized. These design principles have been exploited in developing synthetic antibiotics, antifibrilising agents with potential use in disease like type II diabetes, Alzhinmen, etc. and peptide based inhibitors as antimalarial agents. Short peptides as self assembling structures are also being examined for their potential as drug delivery agents as well as platforms for three dimensional growths of cells. Peptides based immunogeus as basis for vaccines against HIV are also being developed.

Important Publications: **(1)** Self-assembly of a dipeptide-containing conformationally restricted dehydrophenylalanine residue to from ordered nanotubes. (2007) *Adv. Mat.* **19**, 6, 858–861. **(2)** Haeme-artemisinin adducts are crucial mediators of the ability of artemisinin to inhibit haeme polymerization (2002) *Chem. Biol.* **9**, 321–332. **(3)** First observation of left-handed helical conformation in a dehydro peptide containing two L-Val residues. Crystal and solution structure of Boc-L-Val-Phe-Phe-Phe-L-Val-Ome (1997) *J. Am. Chem. Soc.* **119**, 3205. **(4)** Flexibility in MHC and TCR recognition: Degenerate specificity at the T cell level in the recognition of promiscuous th epitopes exhibiting no primary sequence homology (2001) *J. Immunol.* **166**, 6693–6703. **(5)** Analysis of immune responses against T- and B-cell epitopes from *Plasmodium falciparum* liver-stage antigen 1 in rodent malaria models and malaria-exposed human subjects in India (2000) *Infect. Immun.* **68**, 1, 141–50.

Awards & Distinctions: Rhodes Scholar 74 • UGC Career Award 80.

Cheema, G S*

Elected: 1934
Last Address: 13, West Mascott Road, East Kirkee, Poona 411 003, India
***Deceased:** 2 January 1972

Education: DSc, CIE.

Career: Govt of India, New Delhi: Fruit Development Adviser; Govt of India: Horticulturist.

Cherian, M C*

Elected: 1937
Last Address: Agricultural Research Institute, Coimbatore, India

Education: Univ. of Madras: BA; Univ. of Edinburgh: BSc; Univ. of London: DSc.

Career: Agricultural Res. Inst., Govt of Madras, Coimbatore: Entomologist.

Important Publications: **(1)** Mites on sugarcane (1934) *Madras Agric. J.* **22**, 22–25 **(2)** Mite *(Acarina) Pests Journal of Crops of South India and Methods of their control* (1938) *Agric. Livestk. India* **8**, 537–540.

Chhuttani, Pran Nath*

Elected: 1973
Specialization: Gastroenterology; Internal Medicine
Date and Place of Birth: 26 February 1915; Leiah, Pakistan
Parents: Rup Narayan and Vidyavati
Last Address: House No 22, Sector IV, Chandigarh 160 001, India
***Deceased:** 19 July 1996

Education: Univ. of Panjab: MBBS 38, DTM 40, MD 42.

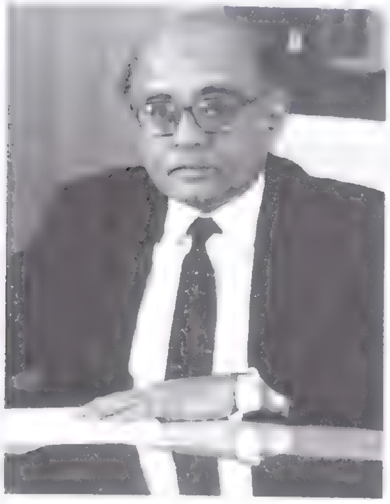
Career: Patiala & Amritsar Medical Colleges: Prof. of Clinical Medicine 56–62; Postgraduate Inst. of Medical Edn & Res., Chandigarh: Prof., Dean & Dir 62–78; Punjab Univ.: Senator 69–87.

Scientific Work: Reported the existence of Huntington's Chorea in the subcontinent and, on tracing the genetic trees, found its ramifications not only in Punjab but also in remote parts of the country. Made significant contributions in bowel and hepatic amoebiasis. Research activity in haematology showed widespread existence of anaemia in the armed forces, especially amongst vegetarian troops. Important piece of investigation referred to widespread occurrence of nutritional neuropathy in Persia and Iraq forces and the Middle East during World War II. In the early sixties, described various diseases occurring in Rhesus monkey. Worked in the field of biogas generation and the safety of its effluents when the digesting chamber is connected with human latrines.

Memberships: Fellow: London Royal Soc. of Medicine • President: Assn of Gastroenterology; Asian Assn Gastroenterology; Assn for Advancement of Medical Education 75–77; Natl Acad. of Medical Sci. 77–79; Natl Assn of Indian Doctors for Prevention of Nuclear War 85–89.

Awards & Distinctions: Padma Bhushan 72 • B C Roy Award 87 • Hon. Brigadier • BHU: DSc hc.

Chidambaram, Rajagopala



Elected: 1974
Position: DAE Homi Bhabha Chair Prof., BARC, Mumbai; Principal Sci. Advisor to Govt of India
Specialization: High Pressure Physics; Neutron Crystallography; Materials Science; Nuclear Technology
Date and Place of Birth: 12 November 1936; Madras, Tamil Nadu
Parents: C Rajagopala Aiyar and Ananthalakshmi
Spouse and Children: Chella; two *d*
Address: 318, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi 110 001, India
Tel. (011) 2302 2112 (O), (022) 2363 1194 (R)
email: rc@barc.gov.in, chairman@tifac.org.in, rajachid@nic.in

Education: Madras Univ.: BSc Hons 56, MSc 58; IISc, Bangalore: PhD 62, DSc 91.

Career: BARC, Mumbai: Sci. Offr, Head Neutron Physics Dn, 62–, Phys. Group, Dir 84–90; Dir 90–93; Atomic Energy Commission: Chmn 93–2000; Govt. of India: Principal Sci. Adviser, 2001–.

Scientific Work: His groups are internationally recognized in the fields of neutron crystallography and high pressure physics. Outstanding experimental and theoretical contributions have been in the field of hydrogen bonding in solids. Was the first to point out and justify that in hydrated crtystals, bent hydrogen bonds are formed in preference to distortion of the H-O-H angle. Later work was on the energetics of nonlinear N-H-O bonds between peptide groups. It was also the first in the country to build a fully-automatic computes controlled diffractomaters. Initiated research in high-pressure physics in BARC and made contribution in equation of state and phase transition at high pressure. Contributed to many aspects of the nuclear energy programme, including the nuclear experiments at Pokhran in 1974 and 1998.

Important Publications: **(1)** The May 1998 Pokhran tests: scientific aspects (2008) *Atoms for Peace: An International Journal* **2** (1), 41–58. **(2)** Equation of state theories of condensed matter upto about 10 Tpa (1983) *Phys. Rep.* **102**, 121–197. **(3)** Omega phase in materials (1982) *Prog. Mater. Sci.* **27**, 245–310. **(4)** A model for the equation of state of condensed matter in the 'intermediate' (5–100 Megabar) Region (1981) *Phys. Rev. Lett.* **47**, 1144. **(5)** Structure of the hydrogen-bonded water molecule in crystals (1962) *J. Chem. Phys.* **36**, 2361.

Memberships: Fellow: INSA 78; NASI 93; INAE 98; TWAS 95; Inst. Phys. (London) 2002.

Awards & Distinctions: Padma Shri 75 • IISc Distinguished Alumnus Award 91 • INSA Jawaharlal Nehru Birth Centenary Vis. Fellowship Award 92 • IPA R D Birla Award 96 • ISCA C V Raman Birth Centenary Award 95 • Padma Vibhushan 99 • INSA Meghnad Saha Medal 2002 • INSA Homi Bhabha Life Time Achievement Award 2006.

Chitnis, Chetan Eknath

Elected: 2009
Position: Staff Res. Sci., ICGEB, New Delhi
Specialization: Molecular Parasitology; Vaccine Development; Malaria; Molecular & Cell Biology
Date and Place of Birth: 3 April 1961; Mumbai
Parents: Eknath V Chitnis and Kumudini
Spouse and Children: Amika Raj; two *d* (Tarini, Chandini)
Address: International Centre for Genetic Engineering and Biotechnology (ICGEB),
Aruna Asaf Ali Marg, New Delhi 110067, India
Tel. (011) 2674 2895(O), (0124) 430 0068 (R), Mobile: 98104 00155
email: cchitnis@icgeb.res.in; URL: www.icgeb.org/chetan-chitnis-lab.html

Education: IIT Bombay: MSc Physics 83; Rice Univ: MA Physics 86; Univ. of California, Berkeley: PhD Biophysics 91.

Career: National Institutes of Health, Bethesda: Postdoc Fellow: 91–95; ICGEB, New Delhi: Asst Sci. 96–

Scientific Work: Focussed on trying to understand molecular interactions that play important functional roles in malaria pathogenesis. Specifically interested in understanding the molecular basis of key receptor-ligand interactions involved in red cell invasion and cytoadherence by malaria parasites. Made a key discovery demonstrating that the receptor-binding sites of key erythrocyte binding proteins (EBPs) such as Duffy binding protein lie in conserved cysteine-rich domains referred to as Duffy-binding-like (DBL) domains. DBL domains are also found in variant surface antigens of *P. falciparum*, which mediate adhesion of infected erythrocytes to capillaries in host organs leading to complications such as cerebral malaria. Leading an effort to develop malaria vaccines based on such conserved DBL domains from EBPs to block host cell invasion and prevent malaria.

Important Publications: **(1)** Naturally acquired Duffy-binding protein-specific binding inhibitory antibodies confer protection from blood-stage *Plasmodium vivax* infection (2008) *Proc. Natl Acad. Sci. USA.* **105**, 8363–8368. **(2)** Structural basis for Duffy recognition by malaria parasite Duffy-binding-like domain (2006) *Nature* **439**, 741–744. **(3)** *Plasmodium falciparum* uses gC1qR/HABP1/p32 as a receptor to bind to vascular endothelium and for platelet-mediated clumping. (2008) *PLoS Pathogens* **3**,9, e130. **(4)** Switches in expression of *Plasmodium falciparum* var genes correlate with changes in antigenic and cytoadherent phenotypes of infected erythrocytes (1995) *Cell* **82**, 1101–1110 **(5)** Identification of the erythrocyte binding domains of *Plasmodium vivax* and *Plasmodium knowlesi* proteins involved in erythrocyte invasion (1994) *J. Exp. Med.* **180**, 497–506.

Awards & Distinctions: Young Investigator Award, American Soc. of Microbiology 95 • B N Singh Memorial Award, Indian Soc. of Parasitology 97 • M O T Iyengar Award for Research on Malaria ICMR 2000 • S S Bhatnagar Award 2004 • Intl Research Scholar, Howard Hughes Medical Institute, USA 2000–05 • Intl Sr Res. Fellow, The Wellcome Trust, UK 2000–05 • TATA Innovation Fellowship, Department of Biotechnology, India 2007–10.

Chitre, Shashikumar Madhusudan

Elected: 1986
Position: Prof., UM-DAE Centre for Basic Sciences, Univ. of Mumbai
Specialization: Solar Physics; Relativistic Astrophysics; Gravitational Lenses
Date and Place of Birth: 7 May 1936; Bombay, Maharashtra
Parents: Madhusudan Anandrao Chitre and Malathi
Spouse and Children: Suvarnalata; two *s* (Yateen, Yougandh)
Address: 201, Vigyan Shila, Juhu-Versova Link Road, Near 7 Bungalows, Andheri(W), Mumbai 400 061, India
Tel. (022) 2635 3812 (R), Mobile: 98193 66447
email: kumarchitre@gmail.com

Education: Univ. of Bombay: BA 56; Univ. of Cambridge: MA 60, PhD 63.

Career: Univ. of Leeds, UK: Lecturer 63–66; Calif. Inst. Technol, USA: Res. Fellow 66–67; TIFR, Mumbai: Fellow 67–70, Reader 74–79, Assoc. Prof. 79–85, Prof. 86–92, Sr Prof. 92–2001; National Acad. of Sci. Sr Res. Assoc. 70–72, 88–89; Queen Mary and Westfield College, London: Perren Vis. Fellow and Vis. Prof. of Astronomy 92–97; Queen Mary College, London: Leverhulme Visiting Prof. 2001 & 2002; Raja Ramanna Fellow University of Mumbai 2001–06; Visiting Astronomer at the institute of Astronomy, Cambridge 2003–05 and 2007–09.

Scientific Work: Research mainly in the area of solar physics, physics and astrophysics of condensed objects and gravitational lensing. Worked on problems concerning the structure andstability of sunspots and studied the underlying mechanism responsible for driving solar activity cycle and constructed equation of state of dense matter inside neutron starts. Recent contribution related to problems of missing solar neutrinos and helioseismology as a tool to probe the internal structure of the Sun including its differential rotation and use of gravitational lensing to infer the large-scale magnetic fields in galaxies and clusters of galaxies. Currently interested in the decay of cosmic magnetic fields scale magnetic fields in galaxies and clusters of galaxies. Currently interested in the decay of cosmic magnetic fields with special reference to those associated with neutron stars and partially ionized atmospheres of cool stars.

Important Publications **(1)** The structure of sunspots (1963) *Mon. Not. R. Astron. Soc.* **123**, 431–443. **(2)** Solidification of neutron matter (1973) *Phys. Rev. Lett.* **30**, 999–1002 **(3)** Discovery of infrared bursts from Liller 1 (1979) *Nature* **280**, 819–820 **(4)** Spheroidal gravitational lenses and the triple quasar (1979) *Mon. Not. R. Astron. Soc.* **200**, 941–950 **(5)** Missing Image in gravitational lens systems (1986) *Nature* **321**, 45–46 **(6)** Rapid dissipation of magnetic fields due to the hall current (2000) *Phys. Rev. E.* **61**, 4422–4430.

Memberships: Member: Intl Astronomical Union, CIT, USA • Fellow: INSA 88; NASI 92, TWAS; Maharashtra Acad. of Sci.; Royal Astron. Soc.

Awards and Distinctions: U G C National Lecturer 75–76 • NASI A C Banerjee Memorial Award Lecture 92 • Perren Lecture at the Queen Mary and Westified College, London 95 • INSA-Vainu Bappu Memorial Award 95 • M P Birla Award 99 • Vaidya-Raychaudhari Endowment Fund Lecture 99 • Kum. L A Meera Memorial Award Lecture 2001 • DAE-Raja Ramanna Lecture on Physics 2007 • J R D Tata Public Lecture of TIFR Alumini Association 2009.

Chokshi, Atul Harish

Elected: 2005
Position: Prof., IISc, Bangalore
Specialization: High Temperature Deformation & Failure; Ceramics; Nanomaterials
Date and Place of Birth: 24 March, 1958; Cambay, Gujarat
Parents: Harish Chokshi and Pravina
Spouse and Children: Arati; one *s*, one *d*
Address: Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2684, (080) 2360 1480 (O), (080) 2360 2466 (R)
email: achokshi@materials.iisc.ernet.in

Education: IIT Madras: BTech 80; Univ. of Southern California, USA: MS 81, PhD 84.

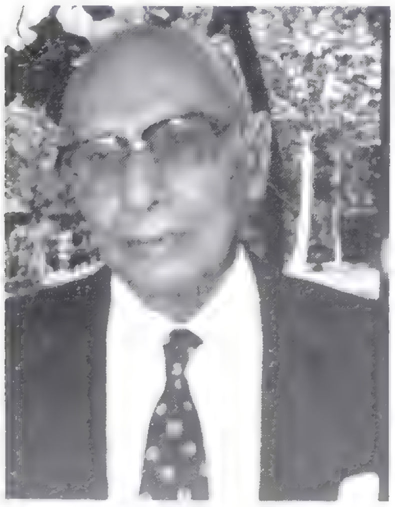
Career: Univ. of Southern California: Postdoc 84–86; Univ. of California, Davis: Postdoc 86–88; Univ. of California, San Diego: Asst Prof. 89–92, Assoc. Prof. 92–93; IISc, Bangalore: Assoc. Prof. 94–2000, Prof. 2000–.

Scientific Work: Initiated several innovative projects dealing with the role of interfaces in high temperature deformation and failure. Involved in first reports on creep in whisker reinforced ceramic composities, and a weakening of metallic materials at nanocrystalline grain size. Research activities have led to significant contributions to the understanding of high temperature deformation in fine grained yttria stablized tetragonal zirconia. Research led to the first complete report on diffusion creep and transitions to interface controlled diffusion creep and intragranular dislocation creep in this material.

Memberships: Fellow: NASI 2001; INSA 2004; INAE 2004.

Awards & Distinctions: Swarna Jayanthi Fellowship • S S Bhatnagar Award

Chopra, Ishwar Chander*



Elected: 1962
Specialization: Pharmacology; Toxicology; Indian Medicinal Plants
Date and Place of Birth: 8 January 1911; Jammu, Jammu & Kashmir
Parents: Ram Nath Chopra and Permeshwari
Spouse and Children: Mrinalini; two *s*, two *d* (Ravish, Rakesh, Mridula, Amita)
Last Address: C-116, Defence Colony, New Delhi 110 024, India
***Deceased:** 18 October 1996

Education: Univ. of Cambridge: Tripos 32, MA 35; LRCP, London; MRCS 37; DTM, Calcutta.

Career: Drug Res. Lab, Jammu & Kashmir: Sr Pharmacologist 41–55, Dir 55–58; Regional Res. Lab.: Dir-in-Charge 58–64; CSIR: Asst Dir General 64–71; Indian Inst. of Experimental Medicine: Dir-in-Charge 67; Patel Chest Inst., Delhi: Sci. Emeritus 71–74.

Scientific Work: Pharmacological studies were conducted on medicinal plants such as *Inula royleana, Rhamnus virgtus* (Indian cascara), *Strophanthus wightianus* (Indian Strophanthus), *Physochlaina praealta, Sarcococa pruniformis* and many others. Pharmacological studies also made on the essential oils distilled from Indian Dill, *Mentha arvensis, M. peiperita, Chenopodium ambrosiodies,* etc. Studied action of *Cannabis sativa* in relation to mental diseases and crime and quasi medical uses of opium in India and its effects. Worked on synergistic action of streptomycin and chloromycelin *in vitro,* as also of chloromycetin and ptergospermin and similarly other antibiotics. Studied sterility test of chemical injectible solutions. Studied antibacterial properties of volatile principles from *Alpinia galanga* and *Acorus calamus,* etc. Surveyed abortifacient, insecticidal and insect repellant plants and worked out the toxicological effects of plants.

Important Publications:(1) *Medicinal plants of the arid zones* (1958) UNESCO. **(2)** *A review of work on Indian medicinal plants* (1955) ICMR. **(3)** The cocaine problem in India (1950) *Bull. Narcotics* **10**, 2. **(4)** *Minor drug habits in India* (1942) IndMcs Gazetts. **(5)** *A treatise on tropical therapeutics* (1950) UN Dhur.

Chopra, Kasturi Lal

Elected: 1980
Position: Hon. Prof., CES and Advisor, Thin Film Laboratory, IIT Delhi
Specialization: Physics & Technology of Thin Films; Nanomaterials; Surface Science; Photovoltaics
Date and Place of Birth: 31 July 1933; Chahal Kalan, West Punjab
Parents: Jagat Ram and Chanan Devi
Spouse and Children: Asha; three *d* (Leena, Reva, Niti)
Address: M-70 Kirti Nagar, New Delhi 110 015, India
Tel. (011) 2659 1299 (O), (011) 2515 4114 (R)
email: klchopra@physics.iitd.ernet.in, choprakl@yahoo.com

Education: Delhi Univ.: BSc Hons 52, MSc 54; Univ. of British Columbia: PhD 57.

Career: Royal Military College, Canada: Postdoc 57–59; Fritz Haber Inst., Berlin: Max-Planck Fellow 59–62; Philco-Ford Scientific Lab., USA: Group Leader 62–64; Kennecott Copper Corporation, USA: Staff Sci. 64–70; North eastern Univ., USA: Adjunct Prof. 66–69; IIT, Delhi, Dept of Physics: Sr Prof. & Head of Phys. Dept and Thin Films Lab and Solid State Technology Cell 70–77, Physics Dept: Head 70–78; Postgraduate Studies and Res.. Dean 76–79; Industrial R&D: Dean 75–76 & 85–87; Faculty of Sci.: Chmn & Dean 78–74; Centre for Energy Studies: Head 88–85; IREDA Chair Prof. 97–2002, Hon Prof. 2004-;Cornell Univ.: Visisting Prof. 79–80; IIT Kharagpur: Dir 87–97.

Scientific Work: Pioneering studies of size effects in thin film properties; estabilished specular scattering of electrons in expitaxial metal films; discovery of field induced nucleation and growth process, polymorphism in thin films; discovery of giant photocontraction effect in amorphous chalcogenide films, pioneering development of semiconducting metalllopolymer films; chemical bath deposition technology for semiconductor films, spray pyrolysis of transparent conducting oxides, in particular ZnO films for the first time (now globally used industrial processes) ion beam and other sputter deposition technologies; novel chemical processes for low dimensional nanomaterials, high temperature superconductors, physics and technology of various thin-film solar cells, surface technologies, etc.

Important Publications: **(1)** Influence of electric field on growth on thin metal films (1965) *J. Appl. Phys.* **37**, 2249; **(2)** *Thin films phenomena* (1969) McGraw Hill, NewYork; **(3)** *Thin film solar cells* (1983) Plenum Press **(4)** Photo induced chemical effects in obliquely deposited amorphous GE-Se films (1980) *J. Appl. Phys.* **51**, 1768. **(5)** Transparent conductors (1988) *Thin Solid Films* **102**, 1.

Memberships: Fellow: INSA 78; INAE 87; NASI 88; APMSA 90; Am. Phys. Soc. 67 • Member: IUVSTA Thin Film Dn 82–87; UNESCO Sci. Committee 94 • President: Indian Vacuum Soc. 78–80, Soc. for Scientific Values 2002– • Vice President: Electron Microscopy Soc. 85; MRSI 87.

Awards & Distinctions: Kennecott Corp Four Patent Awards 64–70; S S Bhatnagar Prize 75 • S S Bhatnagar Award for Solar Energy Conversion 85 • Om Prakash Bhasin Award 89 • UGC Homi Bhabha Award 89 • FICCI Award 89 • INSA Krishnan Medal Lecture 94 • Biren Royal Medal 97 • INSA P C Mahalanobis Medal 96 • INSA Aryabhata Gold Medal 2004 • ISI Citation Laureate award, USA for 'One of the seven most highly cited scientists of India' 2004 • MRSI Distinguished Scientist/Life-Time Achievement Award 94.

Chopra, N N*

Elected: 1944
Specialisation: Organic Chemistry, Enzymes; Microbiology; Plant Physiology; Blood and Plasma; Preservation
Last Address: R. No. 126, B Block, Army Headquarters, MGO Branch, New Delhi, India
***Deceased:**

Education: Univ. of Punjab: MSc, PhD.

Career: Army Headquarters, New Delhi: Controller of Stores Development.

Chopra, Virendra Lal

Elected: 1982
Position: Member, Planning Commission, New Delhi
Specialization: Genetics & Crop Improvement; Plant Biotechnology
Date and Place of Birth: 9 August 1936; Adhwal, Punjab
Parents: H L Chopra and Sukhwanti
Address: Yojana Bhavan, Sansad Marg, New Delhi 110 001
Tel. (011) 2309 6586 (O), (011) 2555 3747 (R)
email: vl.chopra@yojana.nic.in; naas@vsnl.com

Education: Univ. of Delhi: BSc Hons 55, Associateship IARI 57; Univ. of Edinburgh: PhD 67.

Career: IARI, New Delhi: Res. Asst 58–60, Asst Geneticist 60–67, Geneticist 67–70, Prof. of Genetics 70–74, Head, Dn of Genetics 74–75 & 77–80, Dir and Prof. of Eminence 85–90; ICAR: Dir General; Dept of Agri. Res. & Edn Govt of India: 92–94; National Res. Centre on Plant Biotechnol., IARI, New Delhi: National Prof. 94–2001; Planning Commission, New Delhi: Member 2005–.

Scientific Work: Extended the results of basic work and addressed problems of applied agriculture in assessing and managing experimentally produced genetic variation leading to useful applications. Integrated approach has led to release of varieties of wheat and mustard for commercial cultivation and development of genetically enhanced germplasm through biotechnological and recombinant DNA approaches. Studies on reproductive control of *Brassica* have led to the development of diversified cytoplasmic male sterile lines and their restorers, thus, laying foundation for production of hybrids of Indian mustard, *Brassica juncea*.

Memberships: Fellow: INSA 82; NASI 88; TWAS 89; European Acad. of Arts, Sci. & Humanities • President: NAAS.

Awards & Distinctions: Borlaug Award 83 • Padma Bhushan 85 • FICCI Award 86 • O P Bhasin Award 87 • FAO/IAAS World Food Day Award 93.

Choudary, Boyapati Manoranjan

Elected: 1992
Position: Managing Dir, Ogene Systems India Pvt Ltd, Hyderabad
Specialization: Homogeneous and Heterogeneous Catalysis; Organic Synthesis Via Organometallics; Nanotechnology; Nanomedicine
Date and Place of Birth: 10 August 1946; Gudivada, Andhra Pradesh
Parents: Ramaswamy and Sasirekha
Spouse and Children: Dhanalakshmi; one *s*, one *d*
Address: Ogene Systems India Private Limited, 11-6-56, I Floor, GSR Estates,
Balanagar,Hyderabad 500 037 India
Tel. (040) 2377 4455, (040) 2377 5566 (O), (040) 2355 1539 (R), Mobile: 94400 67487
email: bmchoudary@gmail.com; URL: www.ogene.co.in

Education: Andhra Univ.: BSc 67; Vikram Univ.: MSc 70; Gujarat Univ.: PhD 80.

Career: K M College, Warangal: Lecturer 70–73; Regional Res. Lab., Hyderabad: SRF, SSA, Sci. 73–2005; Ogene Systems: Managing Dir 2005–.

Scientific Work: Designed and developed several innovative catalysts for selective organic transformations in the area of selective and asymmetric catalysis. High science and technological work in the area of nanomaterials for catalysis gave highly cited articles. Developed, nanomedicines which are a thrust area presently. Several technologies for APIs developed, which are green and highly cost-effective.

Important Publications: **(1)** Nanocrystalline MgO for asymmetric Henry and Michael reactions (2005) *J. Am. Chem. Soc.* **127**, 13167–71. **(2)** Design and evolution of copper apatite catalysts for N-arylation of heterocycles with chloro and fluoroarenes (2005) *J. Am. Chem. Soc.* **127**, 9948. **(3)** Hydrogen processing by Fe III-exchanged Montmorillonite: A Unique geochemical protocol (2005) *Angew. Chem.* Int. Ed. **44**, 322. **(4)** Bifunctional nanocrystalline MgO for chiral epoxy ketones via Claisen Schmidt condensation-asymmetric epoxidation (2004) *J. Am. Chem. Soc.* **126**, 3396. **(5)** Synthesis of surface organopalladium intermediates in coupling reactions. The mechanistic insight (2004) *J. Am. Chem. Soc.* **126**, 2293.

Memberships: Member: Intl Advisory Board, Eighth Intl Symposium on Relations between Homogenous and Heterogenous Catalysis, Hungary.

Awards & Distinctions: S S Bhatnagar Prize 90 • IICT Young Sci. Award 87.

Choudhary, Vasant Ramchandra

Elected: 1993
Position: Emeritus Sci., NCL, Pune
Specialization: Heterogeneous Catalysis; Zeolites: Adsorption/Catalysis; Natural Gas and Lower Alkane Conversion/Utilization; Green Chemistry/Processes
Date and Place of Birth: 1 January 1944; Melsangwe, Maharashtra
Parents: R J Choudhary and Laxmibai
Spouse and Children: Asha; one *s*, one *d*
Address: Chemical Engineering Division, National Chemical Laboratory, Pune 411 008, India
Tel. (020) 2590 2318 (O), (020) 6526 5508 (R)
email: vr.choudhary@ncl.res.in

Education: Poona Univ.: BSc 65, MSc 67, PhD 72.

Career: NCL, Pune, Dept of Chemical Engg & Process Development: JRF 67–71, Sci. 72– 2003, Emeritus Sci. 2004; Indian Petrochemicals Corporation Ltd., Baroda, R&D Centre: Sr. Res. Chemist 74–.

Scientific Work: Carried out extensive research on zeolites synthesis, modification, characterization, adsorption and intracrystalline diffusion/mass transfer, catalytic reactions in hydrocarbon conversions, acidity/active sites, selective poisoning, deactivation due to coking and regeneration of zeolite catalysts and also on the oxidative conversion of methane/natural gas into value added products such as ethylene/lower olefins and syngas (i.e. CO and H_2) by novel energy efficient and safer processes, requiring little or no external energy.

Important Publications: **(1)** Selective oxidation of methane to CO and H_2 over Ni/MgO at low temperature (1992) *Angew. Chem.* Int. Ed. Engl. **31,** 1189; (1992) *Angew. Chem.* **104,** 1273–1274. **(2)** Coupling of exothermic oxidative conversion and endothermic CO_2 and steam reforming of methane to syngas over NiO-CaO catalyst (1994) *Angew. Chem.* Int. Ed. Engl. **33,** 2104–2106; (1994) *Angew. Chem.* **106,** 2779–2781. **(3)** Coupling of endothermic thermal cracking with exothermic oxidative dehydrogenation of ethane to ethylene using diluted catalyst (1995) *Angew. Chem.* Int. Ed. Engl. **34,** 665. **(4)** Low temperature non-oxidative activation of methane over H-galloaluminosilicate (MFI) zeolite (1997) *Science* **275,** 1286–1289. **(5)** Energy efficient syngas production via catalytic oxy-methane reforming reactions (2008) *Angew. Chem.* Int. Engl. Ed. **47,** 1828–1847.

Memberships: Member: Catalysis Soc. of India • Fellow: Maharashtra Acad. of Sci.

Awards & Distinctions: Vasvik Research Award 93 • Eminent Sci. Award The Catalysis Soc. of India 2000 • Prof. Rajadhyakshya Memorial Lecture UDCT, Bombay 2001 • Silver medals for US patents, NCL Research Foundation 95–2002.

Chowdhury, Debashish

Elected: 2004
Position: Prof., IIT Kanpur
Specialization: Statistical Physics; Condensed Matter Physics; Biological Physics
Date and Place of Birth: 10 September 1957; Jamshedpur
Parents: Sachindra Kumar Chowdhury and Milon
Spouse and Children: Indrani; one s
Address: Department of Physics, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7039 (O), (0512) 259 8465 (R)
email: debch@iitk.ac.in; URL: http://home.iitk.ac.in/%7Edebch/index.html

Education: St. Xavier's College, Ranchi: BSc 77; IIT Kharagpur: MSc 80; IIT Kanpur: PhD 84.

Career: Univ. of Koln, Germany: Humboldt Fellow 84–85; Temple Univ., Philadelphia: Sr Res. Assoc. 85–87; Jawaharlal Nehru Univ., New Delhi: Asst Prof. 87–92; IIT Kanpur: Assoc. Prof. 93–97; Prof. 97–.

Scientific Work: Made outstanding contributions to statistical and biological physics. Established the true critical behaviour of disordered magnets, discovered singular dynamics scaling and demonstrated a logarithmically slow domain growth in these systems. Monograph on spin glasses served as a compendium for a generation of researchers. Interdisciplinary studies are based on novel applications of concepts and techniques of statistical mechanics in biological physics (e.g. molecular motor proteins and intracellular transport, evolutionary ecology), chemical physics (e.g. dimeric surfactants and micellar solutions) and traffic engineering (e.g. particle-hopping models of vehicular traffic). Derived exact analytical expressions for time- and distance-headways in traffic. Demonstrated the interplay of evolutionary changes and ecological dynamics on survival and extinction of species in eco-systems. In recent papers, developed analytically tractable models for single-headed kinesins, helicase, polymerase and ribosome motors. Has demystified bursts observed in gene expression.

Important Publications: **(1)** *Spin glasses and other frustrated systems* (1986) Princeton University Press (USA), World Scientific Publishing Co., Singapore, 385 pp. **(2)** Micellar aggregates of gemini surfactants: Monte Carlo simulation of a microscopic model (1998) *Europhysics Lett.* **41**, 183. **(3)** Distributions of time- and distance-headways in the Nagel–Schreckenberg model of vehicular traffic: Effects of hindrance (1998) *Euro. Phys. J.* **B5**, 781. **(4)** Statistical physics of vehicular traffic and some related systems (2000) *Phys. Rep.* **329**, 199–329. **(5)** Intra-cellular transport of single-headed molecular motors KIF1A (2005) *Phys. Rev. Lett.* **95**, 118101.

Memberships: Assoc.: ICTP, Trieste 91–98 • Fellow: NASI 2008.

Awards & Distinctions: INSA Young Sci. Medal 89.

Chowdhury, Mihir

Elected: 1977
Position: INSA Sr Sci., IACS, Kolkata
Specialization: Spectroscopy
Date and Place of Birth: 15 July 1937; Dhaka, Bangladesh
Parents: J K Chowdhury and Indira
Spouse and Children: Sunanda; one *s*, one *d*
Address: Department of Physical Chemistry,
Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 2542/147 (O), (033) 2461 9407 (R)
email: pcmc@iacs.res.in

Education: Calcutta Univ.: BSc 55, MSc 57, PhD 60

Career: Calcutta Univ.: Predoc Fellow 58–60; Pennsylvania State Univ., USA: Postdoc Fellow 61–62; Univ. of Chicago, USA: Res. Assoc. 62–64; IACS: Pool Offr 64–66; Dept of Physical Chem.: Prof. 76–2002, INSA Sr Sci. 2003–; Presidency College, Calcutta, Dept of Chem.: Prof. 66–76.

Scientific Work: Researched into two-photo absorption, high-resolution laser spectroscopy of molecules in seeded molecular beam, time-resolved emission and absorption of transient species, circular dichroism of single crystals of lanthanide complexes, magnetic effect on exciplex luminescence and radical pair recombination, Zeeman effect on S-T transitions, spin-forbidden radiative and radiationless transitions from charge-transfer, n-pi* and crystal-field-split states, and multi-photon ionization in jet.

Memberships: Fellow: INSA 80; Indian Chemical Soc.

Awards & Distinctions: S S Bhatnagar Prize 77.

Chowla, Sarvadaman*

Elected: 1934
Specialization: Number Theory; Pure Mathematics
Date and Place of birth: 22 October 1907, London, UK
Parents: Gopal Singh and Shakuntala
Spouse and Children: Himani, One *d*
Last Address: 4055 24th Street, Laramice, Wyoming 82070, USA.
***Deceased:** 10 December 1995

Education: BA, Masters; Univ. of Cambridge: PhD 31.

Career: St. Stephen's College, Delhi: Lecturer 31; BHU, Varanasi: Mathematics Dept; Andhra Univ., Waltair: Reader in Maths; Govt College, Lahore: Prof. of Mathematics; Inst. for Advanced Study Princeton.

Scientific Work: Best known to the mathematical community for four theorems which bears his name: the Ankeny–Artin–Chowla theorem, the Bruck–Chowla–Ryser theorem, the Chowla–Mordell theorem, and the Chowla–Selberg formula. Many contributions to number theory have had a significant influence on the development of the subject. Theorems, questions and conjectures have led the way to a considerable amount of research elsewhere some four decades later.

Memberships: Fellow: INSA.

Awards and Distinctions: Srinivasa Ramanujam Medal 82

Cipriani, Lidio*

Elected: 1935
Specialization: Anthropology
Date and Place of Birth: 1892, Florence, Italy
Last Address: University of Florence, Italy
***Deceased:** October 1962

Education: Graduation, Dip. in Teaching.

Career: Military Service 15–19; Univ. of Florence, Italy; Museum of Anthropology and Ethnology; Asst Lecturer, Head, Physical Anthropology 28; Anthropology Museum, Port Blair 49–54.

Scientific Work: Conducted anthropological and pre-historical field work in Somalia East Africa, Southern Rhodesia(now Zimbabwe), and Andaman Islands in India. Helped to find the Anthropological Museum, Port Blair and stocked it with aboriginal artifacts. Archeological work on 'kitchen midden' and the 'onge' of little Andamans. First outsider to have crossed little Andaman from coast to coast and his observations enabled the first reliable estimate of the number of Onge.

Correia, Alberto Carlos Germano*

Elected: 1935
Specialization: Anthropology; Climatology; Hygiene
Date of Birth: 22 August 1888
Last Address: Medical Service in Portuguese India, Nova-Goa
***Deceased:**

Education: MD; Univ. of Lisbon, DTM.

Career: Medical Service, Nova-Goa: Joint Dir, Prof. of Hygiene.

Important Publications: **(1)** *The Mussalmans of Goa* (Anthropological study) (1936) *Proc. Indian Acad. Sci.* **3**, 23–24. **(2)** The Marathas of Portuguese India (1935) *Proc. Indian Acad. Sci.* **2**, 467–468.

Cowsik, Ramanath

Elected: 1983
Position: Dir, McDonnell Center for Space Sciences; Prof. of Physics, Washington Univ.
Specialization: Astrophysics; Non-accelerator Particle Physics; Experimental Gravitation
Date and Place of Birth: 29 August 1940; Nagpur, India
Parents: Ramakrishna and Saraswati
Spouse and Children: Sudha; two s (Pradyumna Siddhartha, Aditya Ramakrishna)
Address: Department of Physics, Washington University, Campus Box 1105,
One Brookings Drive, St Louis, MO 63130-4899 USA
Tel. (+1-314) 935 4493 (O), (+1-314) 727 5959 (R)
email: cowsik@physics.wustl.edu; URL: http://physics.wustl.edu/Fac/facDisplay.php?name=Cowsik.txt

Education: Mysore Univ.: BSc 58; Karnataka Univ.: MSc 60; Bombay Univ.: PhD 68; Cambridge Univ. & Univ. of Chicago, USA: Postdoc Res. 69.

Career: TIFR, Bombay: Res. Assoc. 61–65, Res. Fellow 65–68, Fellow 68–75, Reader 75–77, Assoc. Prof. 77–84, Full Prof. 84–90, Sr Prof.; IIA, Bangalore: Dir 92–2003; Washington Univ. in St Louis: Prof. of Phys. 2002, McDonnell Center for Space Sciences: Dir 2007–.

Scientific Work: Theorized that weakly interacting particles with finite rest mass would form a gravitationally dominant relict of the big-bang origin of the universe. They will trigger the formation of galaxies, and will thus generically condense into halos of dark matter that embed the galaxies within them. Showed that such cosmological considerations place strict bounds on the sums of masses of the neutrinos. Research interests extend to the fields of astronomy, astrophysics, cosmology and non-accelerator particle physics. Scientific contributions include establishing the highest observatory in the world in Hanle, Ladakh, in the Himalayas at an altitude of 15,000 ft for astronomy in the optical and infrared wavelength bands and understanding the highly energetic phenomena in astrophysics, such as cosmic rays, pulsars, supernova remnants, gamma ray bursts, active-galactic nuclei and other such sources powered by accretion flows; and inventing the leaky-box and the nested-leaky box models that are extensively used to interpret the observations of cosmic rays. Conducting experiments with torsion balances to probe violations of the inverse square law of gravity at sub-millimeter scales that are predicted by string-motivated theories, and to measure directly the rotations associated with the torroidal oscillations of the earth.

Important Publications: **(1)** Evaluation of high energy natural neutrino experiments (1966) *Proc. Indian. Acad.* Sci. **63**, 217. **(2)** An upper limit on the neutrino rest mass (1972) *Phys. Rev. Lett.* **29**, No. 10, 669. **(3)** Gravity of neutrinos of non-zero mass in astrophysics (1973) *Astrophys. J.* **180**, 7. **(4)** Transport of neutrinos, radiation and energetic particles in accretion flows (1982) *Proc. R. Soc.* London **A383**, 409. **(5)** Neutrino mass limits from a precise determination of $\beta\beta$-decay rates of ^{128}Te and ^{130}Te (1992) *Phys. Rev. Lett.* 69, 16, 2341.

Memberships: Fellow: INSA 86; NASI 90; IGU; TWAS 96 • Member: NAS-USA; AGU; IAU; APS; AAS.

Awards & Distinctions: Vikram Sarabhai Award (Hari Om Prerit) 81 • S S Bhatnagar Award 84 • NASA Public Service Group Achievement Award 86 • TWAS Award in Basic Sciences-Physics 95 • Sir C V Raman Memorial Lecture Award 96 • Vainu Bappu Memorial Award 97 • S N Bose Birth Centenary Award 2001 • Jawaharlal Nehru Birth Centenary Lecture and Padma Shri Award 2002 • M P Birla Award 2007 • O'Ceallaigh Medal 2009.

Dabholkar, Atish Shripad

Elected: 2007
Position: Prof., TIFR, Mumbai
Specialization: Quantum Gravity; Superstring Theory; Black Holes
Date and Place of Birth: 16 September 1963; Kolhapur, Maharashtra
Parents: Shripad Achyut Dabholkar and Vrinda
Spouse and Children: Anita Kovacic; one *d*
Address: Department of Theoretical Physics, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005
Tel. (022) 2278 2428 (O), Mobile: 98921 25101
email: atish@lpthe.jussieu.fr

Education: IIT Kanpur: MSc 85; Princeton Univ.: PhD 90.

Career: Rutgers Univ.: Postdoc 90–93; Harvard Univ., Postdoc 93–94; Cal Tech: Sr Res. Fellow 94–96; TIFR: Assoc. Prof. 96–2007, Prof. 2007–; Stanford Univ.: Vis. Prof. 2003–04.

Scientific Work: Interested in various aspects of quantum gravity. Superstring theory offers the most promising candidate for a consistent quantum gravity with possibility of unification with other forces. Work concerns the microscopic statistical understanding of the entropy of black holes. In a special class of black holes within string theory, it has been possible to obtain precise and detailed account of black hole microstates including quantum correction, the geometry of the horizon and Bekeinstein–Hawking entropy.

Awards & Distinctions: S S Bhatnagar Prize 2006 • National Leadership Award 2007 • Chaire de Excellence de ANR 2007.

Damodaran, Manayath*

Elected: 1934, 1942
Specialization: Protein Chemistry; Biochemistry
Date of Birth: 18 October 1903
Last Address: Biochemical Division, National Chemical Laboratory, Pune 411 008, India
***Deceased:** December 1957

Education: Presidency College, Madras: BSc; Imperial College, London: DSc.

Career: Univ. of Madras, Dept of Biochemistry: Reader, Prof. 32–48; National Chemical Laboratory, Pune, Biochemical Dn: Dy Dir, Dir 48–56.

Scientific Work: Established the first direct proof of the amide hypothesis in proteins, by isolating asparagine and glutamine from enzyme digests of edestin and gliadin, respectively. Demonstrated the presence of glutamic dehydrogenase in germinated seedlings. This was followed up by finding succinic dehydrogenase in germinated seedlings. Bred a remarkably active strain of *A. niger* for the production of citric acid from sugar. Synthesized ascorbic acid from sorbitol, with a 99% intermediary yield of sorbose. Gelatin plasma substituted preparation, based on a tryptic digestion, is undoubtedly the most spectacular contribution towards alleviation of human suffering.

Dani, Shrikrishna Gopalrao

Elected: 1986
Position: Sr Prof., TIFR, Mumbai
Specialization: Ergodic Theory; Dynamics; Measures on Lie Groups; History of Mathematics
Date and Place of Birth: 3 June 1947; Belgaum, Karnataka
Parents: Gopalrao Krishnaji Dani and Radhabai
Spouse and Children: Jyotsna; two *d*
Address: School of Mathematics, Tata Institute of Fundamental Research
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2218 (O), (022) 2280 4760 (R), Mobile: 98690 16996
email: dani@math.tifr.res.in, shrigodani@gmail.com; URL: http://www.math.tifr.res.in/~dani

Education: Bombay Univ.: BSc 67, MSc 69, PhD 75.

Career: Inst. of Advanced Study, USA: Postdoc Res. 76–77; Yale Univ., Connecticut: Asst Prof. 77–78; TIFR, School of Mathematics: Fellow, Reader, Assoc. Prof. and Prof. 76–94, Dean 94–97; Chmn, National Board for Higher Mathematics 2006.

Scientific Work: Studied flows on homogeneous spaces, concerning particularly ergodicity, Kolmogorov property, Bernoulicity, spectrum, invariant measures, topological behaviour and distribution of orbits, etc. and applications to various questions in diophantine approximation. Also, proved the embedding theorem for infinitely divisible probabilities on a large class of Lie groups.

Important Publications: **(1)** Spectrum of an affine transformation (1977) *Duke Math. J.* **44**, 129–155. **(2)** Divergent trajectories of flows on homogeneous spaces and Diophantine approximation (1985) *J. Reine Angew. Math.* **359**, 55–89. **(3)** On orbits of unipotent flows on homogeneous spaces, II (1986) *Ergod. Th. Dynam. Syst.* **6**, 167–182. **(4)** Limit distributions of orbits of unipotent flows and values of quadratic forms (1993) *Advances in Soviet Mathematics* **16**, 91–137. **(5)** Convolution roots and embeddings of probability measures on Lie groups (2007) *Adv. Math.* **209**, 198–211.

Memberships: Fellow: INSA 90; NASI 95.

Awards & Distinctions: INSA Medal for Young Scientists 76 • Concurrent Award of Kothari Inst. 76 • S S Bhatnagar Prize 90 • TWAS Prize in Mathematics 2007.

Daniel, Ranjan Roy*

Elected: 1966
Specialization: Cosmic Ray and High Energy Physics; Space Physics; Infra-red Astronomy
Date and Place of Birth: 11 August 1923; Nagercoil, Tamilnadu
Parents: Masilamani Arumanayagam Daniel and Theresa
Spouse and Children: Serena Padmini; one *s*, three *d* (Samuel, Theresa, Anna Amutha, Sheila)
Last Address: COSTED, 24, Gandhi Mandap Road, Madras 600 025, India
***Deceased:** 27 March 2005

Education: Madras Univ.: BSc 43; BHU: MSc 46; Univ. of Bristol: PhD 53.

Career: TIFR, Bombay: Res. Asst 47–51, Prof. 53–85, Dean 70–75; Committee on Sci. & Technol. in Developing Countries (COSTED) Madras: CSIR Emeritus Sci., Secretary 88–95.

Scientific Work: Pioneered contributions in high-energy physics and strange particles and multiple-charged primary cosmic rays using nuclear emulsions exposed in stratospheric balloons. Discovered high-energy electrons in primary cosmic rays. First studies of energy spectrum of high-energy cosmic ray electrons, extensive studies of pioneering nature on cosmic-ray astrophysics connecting cosmic ray electrons and cosmic radio emission, and far-infrared studies of planets, star-forming regions, etc., using balloon borne devices.

Important Publications: **(1)** Meson scattering (1948) *Nature* **161**, 883–888. **(2)** Production of heavy mesons by protons of energy between 2 and 3000 GeV (1954) *Proc. R. Soc.* **A221**, 531–566. **(3)** The abundance of light nuclei in the primary cosmic radiation (1958) *Phys. Rev.* **110**, 751–765. **(4)** Some characteristics of inelastic proton-nucleon collisions produced by protons of energy 6 2 BeV in nuclear emulsions (1960) *Nuovo Cim.* **16**, 1–25. **(5)** Energetic neutrons and gamma rays measured on Aryabhata satellite (1976) *Pramana* **7**, 355–368.

Memberships: Member: Indian Physics Assn; Astronomical Soc. of India; Sci. Advisory Committee to the Govt of India • Fellow: INSA 75; NASI 88; TWAS 95.

Awards & Distinctions: C V Raman Award 74 • INSA-Vainu Bappu Memorial Award 92 • Padma Bhushan 92 • COSPAR Intl Co-operation Medal 94.

Daruwalla, Erach Hormasji

Elected: 1974
Specialization: Textile Chemistry
Date and Place of Birth: 24 October 1923; Bombay
Parents: Hormasji Jehangirji Daruwalla and Shera
Spouse and Children: Bakhtawar; two *d*
Address: 95, Razia Manor, Prof. Almeida Road, Bandra (West), Mumbai 400 050, India
Tel. (022) 2642 4084 (R)

Education: Univ. of Bombay: BSc 44, BSc Tech. 46, MSc Tech. 48; Univ. of Manchester: PhD 52.

Career: Univ. of Bombay, Dept of Textile Chemistry: Reader 53–60; Univ. of Bombay, Dept of Chemical Technol.: Prof. of Textile Chem. 60–83; Bombay Textile Res. Association: Dir 69–71; Dept of Chemical Technol.: Dir 71–83.

Scientific Work: Specialized in understanding mechanism of dye–polymer interaction and processes involved in action of different reagents on textile fibres. Modified textile fibres with a view to impart desirable characteristics. Photochemical reactions involved in action of light on dyes and fibres. Recently, engaged in research directed to development of eco-friendly products and processes for textiles.

Memberships: Fellow: UK Royal Soc. of Chemistry.

Awards & Distinctions: Univ. of Baroda K G Naik Gold Medal 71.

Das Gupta, Chanchal Kumar

Elected: 1998
Position: Prof. Dept of Biophysics, Mol. Biol. and Genetics, Univ. College of Sci., Kolkata
Specialization: Genetic Recombination; Protein Folding
Date and Place of Birth: 9 November 1945; Jamshedpur, Bihar
Parents: Hemanta Kumar Das Gupta and Sushilbala
Spouse and Children: Uma; two *s*
Address: Department of Biophysics, Molecular Biology and Genetics, University College of Science,
92, APC Road, Kolkata 700 009, India
Tel. (033) 2350 8386/318 (O), (033) 2359 1705 (R)
email: chanchaldg2000@yahoo.com

Education: Univ. of Calcutta: BSc 66, MSc 68, PhD 74.

Career: Univ. of Toronto: Postdoc 75–77; Yale Univ.: Res. Assoc. 77–82; SINP: Reader 82–84; Albert Einstein College of Medicine, USA: Principal Assoc. 84–86; Univ. College of Sci., Calcutta: Prof. 89–.

Scientific Work: Interest in genetic recombination came during PhD work on the requirement of RecA gene of *E. coli* on the SOS repair of phage OX-174. Later studied the direct role of RecA protein to form D-loop, a putative recombination intermediate, and Holliday structures. Discovered a side by side form V DNA heteroduplex formation as an intermediate in RecA mediated strand exchange reaction. Current interest is in ribosome mediated protein folding *in vitro* and *in vivo*. Found this activity in the largest RNA of the large subunit of ribsomes from procaryotic and eukaryotic sources (eubacteria, archaebacteria, mouse, wheat germ, etc). In bacterial 23S rRNA, the activity was found in domain V and the mechanism of this process is being worked out.

Memberships: Fellow: INSA 2003; NASI 97.

Das Gupta, Mrinal Kumar*

Elected: 1990
Specialization: Radio Astronomy; Solar Terrestrial Physics; Electronics
Date and Place of Birth: 1 September 1923; Nalchira, Barisal, Bengal
Parents: Sukumar Das Gupta and Tarubala
Spouse and Children: Dipali; one *s*, one *d* (Anindya, Pampa)
Last Address: P282, CIT Scheme VI M, Kankurgachi, Calcutta 700 054, India
***Deceased:** 28 November 2005

Education: Univ. of Dacca: BSc Hons 45, MSc 46, Univ. of Manchester, UK: PhD 54.

Career: Univ. of Calcutta: Res. Asst 48–50; Calcutta Univ., Inst. of Radio Phys. & Electronics: Lecturer 54–61, Reader 61–68, Prof. 68–76; Univ. of Calcutta, Centre of Advanced Study in Radio Phys. & Electronics: Head 76–80, Prof. 80–88; INSA: Sr Sci. 88–91; Birla Inst. of Planetarium Science, Calcutta: Course Dir 92.

Scientific Work: First Indian radio astronomer. Designed, fabricated and operated first long base-line post-detector correlation radio interferometer using a radio link, intensity-interferometer. Using this interferometer, measured the apparent angular structure of two strong radio sources, CYGNUS-A and CASSIOPEIA-A; along with students contributed to the fields of atmospherics, solar-terrestrial physics, solar microwave and X-ray, emission and allied topics. Some of his significant contributions include: the sudden enhancement of the integrated field intensity of atmospherics subsequent to nuclear explosions; gradual enhancement of integrated fields intensity of atmospherics prior to the incidence of Norwesters; solar cycle dependence of sporadic *E*; variability of solar microwave radiations; effect of total solar eclipse on microwave line-of-sight propagation and on ionosphere electron content; effect of earth's orbital eccentricity on incident of solar flue at 10.7 cm; studies on solar radio burst in relation to other solar optical features.

Important Publications: **(1)** *Classes in radio astronomy* (1982) D. Reidel **(2)** *Observational evidence for black holes in the Universe* (1999) Kluwer.

Memberships: Fellow: INSA 74; IETE; Indian Astronomical Soc.; West Bengal Acad. of Sci. and Technol.

Awards & Distinctions: Mitra Memorial Award 90 • Swami Dayanada Memorial Award 81.

Das Gupta, Sachindra Nath*

Elected: 1935
Specialization: Mycology and Plant Pathology
Date and Place of Birth: 4 November 1902; Jalpaiguri, West Bengal
Parents: Dwaraka Nath Das and Uttama Sundari
Last Address: 1 B, Judges Court Road, Alipore, Kolkata 700 027
***Deceased:** 11 September 1990

Education: Univ. of Calcutta: MSc 25; Imperial College, London: PhD 29, DSc 46.

Career: Univ. of Lucknow, Dept of Botany: Reader 34, Prof., Head 50–58; UNESCO Agric. Sciences, Paris: Counseller 47–50; Public Service Commission, West Bengal: Member 58–60; Kalyani Univ.: Vice-Chancellor 60–68.

Scientific Work: Initiated taxonomic work of aquatic fungi, paper pulp mycology, effect of fungal enzymes, etc. The tip necrosis disease of mango fruit and its cause and control were successfuly solved with coworkers. Though basically a mycologist and plant pathologist, he had a broad vision and was thus responsible for the initiation and development of virology, plant physiology, lichenology and plant genetics in Lucknow University.

Memberships: President: Indian Phytopathological Soc.; Indian Botanical Soc.; Indian Sc. Congress: Botany Section 56.

Awards & Distinctions: Kalyani Univ.: DSc hc 79.

Das, Bhudev Chandra

Elected: 2001
Position: Prof. Gurbaksh Singh Chair, Univ. of Delhi
Specialization: Molecular Biology of Cancer; Molecular Virology; Human Genetics
Date and Place of Birth: 1 May 1948; Midnapur, West Bengal
Parents: Gobardhan Das and Gangamani Das
Spouse and Children: Banani Mukherjee; one *s*, one *d* (Ankan and Arpan)
Address: Dr. B R Ambedkar Centre for Biomedical Research, University of Delhi (North Campus),
Delhi 110 007, India
Tel. (011) 2766 2888, (O), (0120) 258 5511 (R), Mobile: 98105 37835
email: bcdas48@hotmail.com

Education: Utkal Univ.: BSc Hons, BEd 71; Banaras Hindu Univ.: MSc 74, PhD 82.

Career: BHU, Varanasi: JRF 76–80, SRF 80–82; Inst. of Cytology and Preventive Oncology (ICMR), Maulana Azad Medical College, New Delhi: Res. Offr 82–88, Sr Res. Offr (ICMR) 88–90, Asst Dir 90–95, Dy Dir 95–2000, Sr Dy Dir 2000–04, German Cancer Res. Centre, Heidelberg, West Germany: Guest Sci. 86–88; Inst. for Applied Tumour Virology, DKFZ, Heidelberg, West Germany: Vis. Sci. 90; Charing Cross and Westminster Medical School, London:

Vis. Sci. 90; Germany Cancer Research Centre, Heidelberg, Germany: Vis. Sci. 94–96; ICPO, Noida: Dir 2004–08, Dr. BR Ambedkar Centre for Biomedical Res., Univ. of Delhi: Prof. 2008–.

Scientific Work: Has made outstanding contributions in the field of cancer research, genetics and virology. Pioneered the work on human papillomavirus (HPV) that causes cervical and other cancers and the laboratory was the HPV Referral Centre of WHO for whole of South-East Asia. Major area of interest is transcriptional regulation of viral oncogene expression, DNA vaccine and stem cell research.

Important Publications: **(1)** Enhanced frequency of chromosome aberrations in lymphocytes of male compared with females muntjacs after x-ray irradiation *in vitro* (1981) *Nature* **290**, 604–607. **(2)** Human papillomavirus and cervical cancer in Indian women (1989) *Lancet* **II**, 1281. **(3)** Antioxidant-induced changes of the AP-1 transcription complex are paralleled by a selective suppression of human papillomavirus transcription (1997) *J. Virology* **71**, 362–370. **(4)** Constitutive activation of transcription factor AP-1 in cervical cancer and suppression of human papillomavirus (HPV) transcription and AP-1 activity in HELA cells by curcumin (2005) *Int. J. Cancer* **113**, 951–960. **(5)** Selective suppression of NF-kBp65 in hepatitis virus-infected pregnant women manifesting severe liver damage and high mortality (2007) *Mole. Med.* **13**, 518–526. **(6)** Prospects and prejudices of human papillomavirus vaccines in India (2008) *Vaccine* **26**, 2669–2679.

Memberships: Member: Intl Soc. of Cell Biology; American Assn for Cancer Res.; Assn of Intl Union Against Cancer, Geneva; Indian Assn for Cancer Res.; Indian Soc. of Cell Biology; Indian Environmental Mutagen Soc.; Indian Soc. of Oncology; Biotechnology Soc. of India • Fellow: Intl Union against Cancer 96; NASI 98; INSA 2005; NAMS 2004.

Awards & Distinctions: Sandoz Oration Award, ICMR 92 • American Cancer Soc. (ACS) Fellowship 94 • Dr. B C Roy National Award 99 • WHO expert for HPV Diagnostics & Vaccine Program 2003 • Oration Award of Indian Assn for Cancer Res. 2004 • Ranbaxy Research Award 2005 • Pran Nath Chuttani Oration Award 2005 • Shri Ramniklal J Kinarivala Cancer Research Award GCRI, Ahmedabad 2006 • Dr. Prem Nath Wahi Award of ICMR 2006 • J C Bose National Fellowship, DST 2008–13.

Das, Jyotirmoy*

Elected: 1988
Specialization: General Biology; Theoretical Biology
Date and Place of Birth: 13 September 1939; Calcutta
Parents: Benoy Kumar Das and Usha Rani
Spouse and Children: Kalyani; one *d* (Mousumi)
Last Address: Indian Institute of Chemical Biology, 4, Raja S C Mullick Road, Jadavpur, Calcutta 700 032, India
***Deceased:** 26 July 1998

Education: Calcutta Univ.: BSc 58, MSc 60, PhD 68, DSc 82.

Career: Indian Inst. of Chemical Biology, Calcutta, Biophysics Division: Dy Dir & Head 79–95, Dir 95–98; Univ. of Rochester, USA: Vis. Prof. 82; Brookhaven National Lab., USA: Vis. Sci. 84; UGC National Lecturer 85–86.

Scientific Work: Demonstrated DNA repair mechanism in *Vibrio cholerae* and identified genes involved in these processes; elucidated the intracellular replication of choleraphages and investigated the mechanism of biotype differentiation by these phages; analysed the cell surface architecture of *V. cholerae*; developed an oral vaccine strain for cholera; and constructed the physical map of *V. cholerae* genome.

Memberships: Fellow: INSA; NASI • Member: Intl Study Group on Taxonomy; Guha Res. Conf.

Awards & Distinctions: Ranbaxy Research Foundation Award 89 • Om Prakash Bhasin Award 90 • INSA Golden Jubilee Medal.

Das, Mukkattu Ramachandra*

Elected: 1985
Specialization: Molecular Biology; Tumour Biology; Molecular Virology
Date and Place of Birth: 2 July 1937; Tiruvalla, Kerala
Parents: N K Sivashankaran Nair and Gowri Amma
Spouse and Children: Radha; two *d* (Purnima, Jyotsna)
Last Address: Rajiv Gandhi Centre for Biotechnology, Anugraha, (9/1775), Sasthamangalam, Trivandrum 695 010, India
***Deceased:** 1 April 2003

Education: Travancore Univ: BSc 56; Kerala Univ: MSc 58; Bombay Univ: PhD 63.

Career: TIFR, Bombay: Res. Asst, Res. Fellow, Reader 58–76; Univ. of Columbia, Dept of Chem.: Res. Assoc. 63–65, Sr Res. Assoc. 69–71; Cornell Univ., Dept of Chem.: Sr Res. Assoc. 68–69; Inst. of Biologie Physico-Chimique, Paris: Vis. Sci. 71; Lincoln's Inn Fields, London, ICRF Lab.: Vis. Sci. 72; Laboratory of Molecular Biology, Michigan, USA, Cancer Foundation: Consultant Sci. 74, Chief 77–79; CCMB, Hyderabad: Dy Dir 79–90, Dir Grade Sci. 90–94; Rajiv Gandhi Centre for Biotechnology Trivandrum: Founder Dir 94–2001; Adviser and INSA Sr Sci. 2001–03.

Scientific Work: Demonstrated heteropolymeric nature of DNA synthesized from RNA tumour viruses by reverse transcriptase and establishment of homology between reverse transcribed DNA and RNA templates and studies on the structure–function relationship of reverse transcriptase. Worked on the mechanism of function of oncogenes such as myc and ras and also on the expression, amplification and translocation of oncogenes as well as mutations and loss of heterozygocity in anti-oncogenes in mammary tumours and hepatocellular carcinomas. Discovered and characterized a 80 KD ribonuclease from human milk and shown that this enzyme is an isoform of lactoferrin. Developed PCR methods as well as peptide ELISA methods for detecting hepatitis C virus in Indian population.

Memberships: Fellow: INSA 92; NASI; Andhra Pradesh Acad. of Sc.

Awards & Distinctions: Hari Om Ashram Alembic Award 83 • ICMR Sandoz Oration Award 84 • Sreenivasayya Memorial Award 86 • Ranbaxy Award for Medical Sciences 88 • President: Indian Assn for Cancer Res 91–94 • President: Indian Soc. of Cell Biology 93–95 • Swadeshi Sci. Congress Award 2001.

Das, Pijush Kanti

Elected: 2003
Position: Dir Grade Sci., IICB, Kolkata
Specialization: Cell Biology; Membrane Biochemistry; Drug Delivery; Molecular Parasitology and Glycoconjugates
Date and Place of Birth: 13 November 1952; Bongaigaon, Assam
Parents: Madhab Chandra Das and Sova Rani Das
Spouse and Children: Suvra; one s (Suprateek)
Address: Indian Institute of Chemical Biology, 4, Raja SC Mullick Road, Kolkata 700 032, India
Tel. (033) 2414 0921, (033) 2473 3491(0), (033) 2476 9216, (R), Mobile: 98313 41358
email: pijush52@gmail.com, pijushdas@iicb.res.in

Education: Calcutta Univ.: BSc 71, MSc 73, PhD 79.

Career: Calcutta Univ.: Res. Fellow 75–79; Indian Inst. of Chemical Biology, Calcutta: Res. Assoc. 79–80, Sci. 80–; NIH, Bethesda: Vis. Fellow 82–85; Memorial Sloan-Kettering Cancer Centre: Vis. Sci. 90, 95–96; Max-Planck Inst. for Biochem, Munich: 98.

Scientific Work: Work centred on understanding the biology of macrophages with a view to formulating strategies for better therapy against macrophage-associated diseases using visceral leishmaniasis as the model disease. Developed a highly selective and effective neoglycoprotein-mediated macrophage-directed delivery system having the potential of horizontal access to macrophage-associated diseases in general. Work on extracellular matrix binding proteins comprising isolation, detailed molecular characterization and elucidation of the role of laminin-binding protein in pathogenesis of *Leishmania* opened up a basis for successful homing of microbes to their physiological address. Current research activities include the use of agents of natural origin for detailed signal transduction studies towards artificially equipping macrophages with potent microbicidal machinery with long-term immunity. Also involved in a comprehensive study on the cyclic nucleotide mediated responses in *Leishmania* involving cyclases, protein kinases and phosphodiesterases towards deciphering mechanisms of parasite infectivity and survival in macrophages.

Important Publications: **(1)** Role of intracellular cAMP in differentiation-coupled induction of resistance against oxidative damage in *Leishmania donovani* (2008) *Free Radical Biol. Med.* **44**, 779–794. **(2)** 18 beta-glycyrrhetinic acid triggers curative Th1 response and NO upregulation in experimental visceral leishmaniasis associated with the activation of NF-kappa B (2005) *J. Immunol.* **175**, 1161–1169. **(3)** Membrane orientation of laminin binding protein: An extracellular matrix bridging molecule of *Leishmania donovani* (2003) *Eur. J. Biochem.* **270**, 1–8. **(4)** Successful therapy of lethal murine visceral leishmaniasis with cystatin involves up-regulation of nitric oxide and a favourable T cell response (2001) *J. Immunol.* **166**, 4020–4028. **(5)** Protective effect of neoglycoprotein conjugated muramyl dipeptide against *Leishmania donovani* infection: The role of cytokines (1997) *J. Immunol.* **158**, 5357–5365.

Memberships: Fellow: INSA 2007; NASI 97; West Bengal Acad. of Sci. • Member: Soc. of Biological Chemists; Guha Res. Conference; Indian Immunology Soc.; Indian Pharmacology Soc.; Indian Sci. Congress Assn.

Awards & Distinctions: P B Rama Rao Memorial Award 99 • Sr Sci. Oration Award, Indian Immunology Soc. 2007.

Das, Prosad Kumar

Elected: 1975
Specialization: Numerical Weather Prediction; Ocean Atmosphere Coupling; Storm Surges; Dynamic Meteorology
Date and Place of Birth: 20 May 1926; Madhubani, Bihar
Parents: Sudhansu Kumar Das and Rabeya
Spouse and Children: Aparna; one *s*, one *d*
Address: A/59, Kailash Colony, New Delhi 110 048, India
Tel. (011) 2641 6369 (R)

Education: Univ. of Patna: BSc Hons 46; Univ. of London, UK: MSc 48; Univ. of Calcutta: DPhil 63.

Career: India Meteorological Dept: Meteorologist 48–65, Dy Dir Gen. 65–78, Dir-General 79–83; Govt of Malawi, World Meteorological Organization: Consultant 83; Univ. of Nairobi, Kenya: Sr UNDP Prof. 83–85; IIT Delhi: Prof. 85–89; CSIR, Emeritus Sci. 90–93.

Scientific Work: Specialized in numerical modelling in atmospheric sciences. Developed a model for the monsoon circulation for India. Developed a model for computing storm surges for the Indian coastline, and made an analytical study of mountain waves behind a circular mountain.

Memberships: Fellow: INSA 81; Royal Meteorological Soc., London.

Awards & Distinctions: International Meteorological Award 83 • K R Ramanathan Medal 93.

Das, Puspendu Kumar

Elected: 2008
Position: Prof., IISc, Bangalore
Specialization: Laser Spectroscopy and Dynamics; Nonlinear Optics
Date and Place of Birth: 22 May 1958; Chuchurah, West Bengal
Parents: Harendra Kumar Das and Dipti Rani
Spouse and Children: Banani Talukder; one *d*
Address: Department of Inorganic & Physical Chemistry, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2662 (O), (080) 2360 2223 (R)
email: pkdas@ipc.iisc.ernet.in, pkdasipc@gmail.com

Education: Univ. of Calcutta: BSc Hons 77; IIT Kanpur: MSc 80; Columbia Univ., USA: PhD 84.

Career: Univ. of Toronto: Postdoc Fellow 84–86; IISc: Lecturer 86–90, Asst Prof. 90–96, Assoc. Prof. 96–2002, Prof. 2002–.

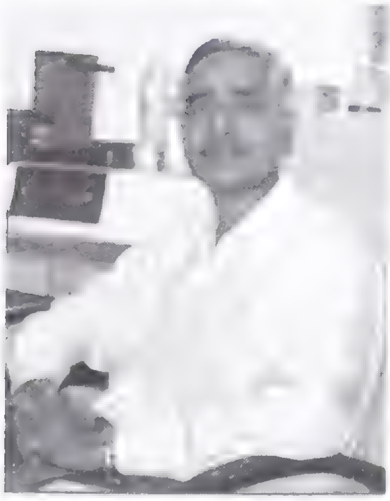
Scientific Work: Works in the area of spectroscopy and dynamics and uses a variety of techniques involving multiple laser-beams. Research has richly added to the understanding of the ultraviolet dissociation pathways in alkyl iodides and bond selective dissociation of dihalogenated alkanes and arenes. Has used hyper-Rayleigh scattering technique for measuring dissociation constants of weak acids, partition coefficient, formation of non-covalent supramolecular structures, CMC of surfactants, multiple binding constants for small molecule-macro-molecule complex, and geometry of weak charge transfer complexes. Has recently shown that local excitation of surface dipoles leads to large optical nonlinearity in noble metal nanoparticles.

Important Publications: **(1)** Dissociation constant of weak organic acids in protic solvents obtained from their first hyperpolarizabilities in solution (1995) *J. Phys. Chem.* **99**, 17891–17895. **(2)** Production of I* (2P1/2) in the ultraviolet photodissociation of alpha-branched alkyl iodides (1996) *J. Chem. Phys.* **104**, 4470–4474. **(3)** Dynamics of I* (2P1/2) production from fluorinated alkyl iodides at 266, 280, and ~305 nm (2000) *J. Chem. Phys.* **112**, 8426–8431. **(4)** Determination of critical micelle concentration by hyper-Rayleigh scattering (2003) *J. Am. Chem. Soc.* **125**, 1602–1605. **(5)** Depolarized hyper-Rayleigh scattering from copper nanoparticles (2007) *J. Phys. Chem.* **C111**, 10652–10656.

Memberships: Member: Intl Advisory Board, Measurement Sc. and Technol.; Inst. of Physics Publishing Co., UK.

Awards & Distinctions: Columbia Univ. Hammdt Award 84 • CRSI Bronze Medal 2002.

Das, Saumitra



Elected: 2009
Position: Assoc. Prof., IISc, Bangalore
Specialization: Molecular Virology; Molecular Biology; Cell Biology
Date and Place of Birth: 20 January 1962; Bongaon, West Bengal
Parents: Harendranath Das and Dipali
Spouse and Children: Soma; one *d* (Somrita)
Address: Deparment of Microbiology and Cell Biology, Indian Institute of Science,
Bangalore 560 012, India
Tel. 080 2293 2886 (O), 080 2360 3632 (R)
email: sdas@mcbl.iisc.ernet.in; URL: http://mcbl.iisc.ernet.in/Welcome%20to%20MCBL/Faculty/das/Das.htm

Education: Univ. of Calcutta: BSc Chemistry 82, MSc 86; PhD 92.

Career: UCLA School of Medicine: Postdoc Res. Scholar 91–94, Asst Res. Virologist 94–98; Dept Microbiol. Cell Biol., IISc, Bangalore: Asst Prof. 98–2004, Assoc. Prof. 2004–.

Scientific Work: Studying the translational control of cellular and viral gene expression. Specifically, interested in the mechanism of internal ribosome entry site (IRES) mediated translation and design drugs targetting IRES element. Made important contributions to the field of protein synthesis. Showed that hepatitis C virus (HCV) translation mediated through IRES element is fundamentally different from that of the host and serves as an excellent target to develop novel antivirals. Developed small-RNAs, peptides and DNAzymes to successfully target the ribosome: HCV–RNA interactions to inhibit HCV replication. Discovered that translation of tumour-suppressor gene p53 and its truncated-isoform is regulated by IRES elements. Understanding this novel regulatory loop might be crucial to unravel the molecular mechanism of HCV-induced hepatocellular carcinoma.

Important Publications: **(1)** Structural determinant of human La protein critical for internal initiation of translation of hepatitis C virus RNA (2008) *J. Virol.* **82**, 23, 11927–11938. **(2)** Two internal ribosome entry sites mediate the translation of p53 isoforms (2006) *EMBO Reports* **7**, 4, 404–410. **(3)** A peptide derived from RRM2 of human La protein binds to Hepatitis C virus IRES, prevents ribosomal assembly and inhibits internal initiation of translation (2005) *J. Virol.* **79**, 15, 9842–9853. **(4)** La protein binding at the GCAC near the initiator AUG facilitates the ribosomal assembly on the hepatitis C virus RNA to influence internal ribosome entry site mediated translation (2004) *J. Biol. Chem.* **279**, 2, 29879–29888. **(5)** Inhibition of Hepatitis C virus translation by small RNAs corresponding to stem-loop structures of the 5-untranslated region by interaction with specific cellular proteins required for internal initiation (2004) *Nucleic Acids Res.* **32**, 5, 1678–1687.

Memberships: Guha Res. Conf. 2004; Am. Soc. Virology; Am. Soc. Microbiology.

Awards & Distinctions: National Bioscience Award for Career Development 2005–06.

Das, Shankar Prasad

Elected: 2005
Position: Prof., JNU, New Delhi
Specialization: Condensed Matter Theory; Statistical Physics; Complex Systems
Date and Place of Birth: 16 March 1959; Calcutta
Parents: Sudhir Kumar Das
Spouse: Soma
Address: School of Physical Sciences, Jawaharlal Nehru University, New Delhi 110 067, India
Tel. (011) 2673 8768 (O), (011) 2612 1583 (R), Mobile: 98996 74943
email: shankar@mail.jnu.ac.in

Education: Calcutta Univ: BSc 78, MSc 80; Univ. of Chicago: PhD 86.

Career: Univ. of Florida: Postdoc 86–88; Inst. for Theoretical Physics, Holland: Postdoc 88–90; Univ. of Florida: Res. Sci. 91; BARC, Mumbai: Vis. Sci. 92–93; S N Bose Centre, Calcutta: Vis. Sci. 93; Saha Inst. Nucl. Phys., Calcutta: Reader 93; School of Physical Sci., JNU: Asst Prof. 93–2000, Assoc. Prof. 2000–.

Scientific Work: Fundamental contributions involve providing basic theory for the dynamical behaviour of a strongly interacting liquid. Work helped to reach the appropriate mode-coupling theory for strongly interacting liquid approaching the glass transition. Also contributed to a unified description of the crystal and the disordered fluid state starting from the basic kinetic equations for a many-particle system. Recent research provided important insight into structural and dynamical heterogeneities of metastable liquids and defects in a crystal using the density functional theory (DFT). Using DFT, demonstrated the existence of a new class of metastable free energy minima which correspond to the heterogeneous states similar to that is found in computer simulation studies. Work on heterogeneity in the dynamics over different time scales identifies the fraction of fluid particles with a high degree of cooperativity.

Important Publications: **(1)** Mode-coupling theory and the glass transition in supercooled liquids (2004) *Rev. Mod. Phys.* **76**, 785–849. **(2)** Heterogeneities in supercooled liquids: A density functional study (2001) *Phys. Rev. Lett.* **86**, 2062. **(3)** Effects of structure on the liquid-glass transition (1987) *Phys. Rev.* **A36**, 211. **(4)** Fluctuating non-linear hydrodynamics and the liquid-glass transition (1986) *Phys. Rev.* **A34**, 2265. **(5)** Hydrodynamic theory of the glass transition (1985) *Phys. Rev. Lett.* **54**, 118.

Das, Sumit Ranjan

Elected: 1998
Position: Prof., Univ. of Kentucky
Specialization: String Theory; Quantum Aspects of Black Holes; Gauge Theories
Date and Place of Birth: 11 December 1955; Calcutta, West Bengal
Parents: Sudhir Ranjan Das and Amiya
Address: Department of Physics and Astronomy, University of Kentucky, Lexington, KY 40506, USA
Tel. (+1 859) 257 4686 (0)
email: das@pa.uky.edu

Education: Univ. of Calcutta: BSc 76, MSc 79; Univ. of Chicago: PhD 83.

Career: Univ. of Chicago: Res. Assoc. 79–83; Fermilab: Postdoc Fellow 83–85; California Inst. of Tech: Postdoc Fellow 87; TIFR: Fellow 87–91, Reader 91–95, Assoc. Prof. 96–99, Prof. 99–2002; Univ. of Kentucky: Prof. 2002–; TIFR Adjunct Prof. 2004–.

Scientific Work: Work on vortices and monopoles in gauge theories include the demonstration that consistency of boundary conditions for fermions in a Grand Unified Theory monopole background necessarily leads to baryon number violation. Construction of a reduced model of large-*N* gauge theory and subsequent numerical simulations leading to the result that the finite temperature deconfinement transition is first order. The demonstration that consistency of strings in massive backgrounds yields the correct equations of motion, extending the connection between conformal invariance and equations of motion to all modes of the string. Work on Liouville theory showed that time in string theory apppears as a component of the worldsheet metric. Moreover renormalization group equations are higher order in derivatives with respect to the scale and are themselves the equations of string field theory. Work on collective field theory of matrix quantum mechanics leading to its interpretation as a two dimensional string theory and thus providing a nonperturbative basis for the latter. Work on quantum aspects of black holes in superstring theory: Identification of excitations of solitonic states which lead to near-extremal black holes and suggestion for their decay mechanism, demonstration that the decay rate is in exact agreement with the rate of Hawking radiation from the corresponding black holes. This result points towards a unitary description of black hole evolution.

Awards & Distinctions: S S Bhatnagar Award 98 • Univ. of Chicago, Valentine Telegdi Award.

Das, Suresh

Elected: 2005
Position: Head, Chemical Sci. and Technol. Dn, NIIST, Thiruvananthapuram
Specialization: Photochemistry; Photoresponsive Materials; Liquid Crystals; Photosensitizing Dyes; Luminescent Materials; Photoinduced Electron Transfer
Date and Place of Birth: 18 February 1955; Hirakud, Orissa
Parents: K Gopal Das and Lalitha
Spouse and Children: Devi Radhakrishnan; one *s*, one *d*
Address: Chemical Sciences & Technology Division, National Institute for Interdisciplinary Science & Technology (NIIST), Thiruvananthapuram 695 019, India
Tel. (0471) 251 5318 (O), (0471) 254 4309 (R)
email: sdaas@rediffmail.com

Education: Univ. of Poona: BSc 75; Univ. of Baghdad: MSc 77; Univ. of Newcastle-Upon-Tyne, UK: PhD 81.

Career: Max Planck Inst. Fuer Strahlenchemie, Germany: Postdoc 81–84; Univ. of Notre Dame, USA: Postdoc 84–85; Univ. of Houston, USA: Postdoc 85–88; TIFR, Mumbai: Vis. Fellow 88–89; NIIST, Trivandrum: 99–.

Scientific Work: Has made significant contributions towards the development of photoresponsive materials of importance in imaging, solar energy harvesting and biological applications. Novel cholesteric liquid crystals capable of recording colour images in erasable direct read after write (EDRAW) devices have been developed. Work on photoresponsive self-assembled materials led to the development of novel photoresponsive liquid crystals, gels and solid state luminescent materials and their use in photoimaging and controlled release applications has been explored. Investigations on the fundamental aspects of the photochemistry and photophysics of visible and near infra-red absorbing squaraine dyes and demonstration of the versatile use of this class of dyes in solar energy harvesting, photodynamic therapy and bioimaging attracted significant attention.

Important Publications: **(1)** Hierarchical self-assembly of donor-acceptor-substituted butadiene amphiphiles into photoresponsive vesicles and gels (2006) *Angew. Chem.* Int. Ed. **45**, 6317–6321. **(2)** Reversible thermal and photochemical switching of liquid crystalline phases and luminescence in diphenylbutadiene-based mesogenic dimers (2006) *J. Am. Chem. Soc.* **128**, 7692–7698. **(3)** Observation of a chiral smectic phase in azobenzene linked bolaamphiphiles containing free sugars (2005) *Adv. Funct. Mater.* **15**, 1579–1584. **(4)** Molecular packing and solid-state fluorescence of alkoxy-cyano substituted diphenylbutadienes: Structure of the luminescent aggregates (2008) *J. Phys. Chem.* **C112**, 2137–2146. **(5)** Thermally reversible fluorescent polymorphs of alkoxy-cyano-substituted diphenyl butadienes: Role of crystal packing in solid state fluorescence (2004) *Chem. Commun.*, 74–75.

Memberships: Council Member: Asian and Oceanic Photochemical Soc.

Awards & Distinctions: CRSI Bronze Medal • MRSI Medal.

Dasannacharya, Balebail Anantha

Elected: 1982
Specialization: Neutron & X-ray Spectrometry; Condensed Matter Physics
Date and Place of Birth: 6 October 1937; Varanasi, Uttar Pradesh
Parents: Balebail Dasannacharya and Indiramma
Spouse and Children: Padmalatha; three s
Address: No. 4, Beach Resort CHS, Sector 10A, Plot 1, Vashi, Navi Mumbai 400 703, India
Tel. (022) 2766 3957 (R), Mobile: 98690 24550
email: adasannacharya@gmail.com

Education: BHU: BSc 57, MSc 61, PhD 69.

Career: BARC, Bombay: Sci. Offr (various grades) 57–93, Head, Nucl. Phys. Dn 87–90, Group Dir 90–96, Outstanding Sci. 93–97; Atomic Energy Canada Ltd, Canada: Colombo Plan Fellow 61–62; Philippines Atomic Res. Centre, Philippines: Intl Atomic Energy Agency Expert 65–66; Inst. fur Festkorperforschung, Germany: Guest Sci. 73–75; Royal Soc., UK–INSA Exchange Fellow 80, INSA–Japan Exchange Fellow 94, Inter Univ. Consortium for Dept of Atomic Energy Facilities Dir 95–2002.

Scientific Work: First automatic neutron powder diffractometer and inelastic scattering spectrometer in Asia for structure and phonon studies; determined time-dependent pair correlation functions in liquid argon; experimental determination of orientational correlation function in molecular liquids; established method for observing high frequency phonons using filter detector spectrometry; experimentally proved breakdown of local pseudopotential in Be; first single-crystal incoherent spectrometry and its polarization dependence; Invented temperature difference filter analyser and installed it at ISIS pulsed neutron source, UK, resulting in long-term collaboration of BARC and Rutherford Appleton Laboratory, UK; extensive neutronic studies of reorientations of molecular groups in solids; first neutron observation of tunnelling modes of CH_3 groups in solid 4-methyl pyridine; observation of phonon like modes in normal liquid ^{4}He; initiated small angle neutron scattering at BARC; history effects in small-angle neutron scattering from micellar systems and its living polymer nature; design of novel neutron beamtubes of Dhruva reactor and several scattering instruments; electron synchrotron beamline design for INDUS; development of Nb-Ti superconducting multifilamentary wires and superconducting magnets for experiments and magnetic separation of Uranium ores; high temperature superconductivity; leadership role in optical and mechanical isotope separation programme at BARC.

Important Publications: **(1)** Neutron scattering from liquid argon (1965) *Phys. Rev.* **137A**, 417. **(2)** Dynamics of CH_4 from cold neutron scattering (1967) *Phys. Rev.* **156**, 196; (1967) *Phys. Rev.* **161**, 133. **(3)** Phonon measurement with filter detector spectrometer and its resolution function (1967) *Nucl. Instrum. Methods* **447**, 45; (1973) *Phys. Rev.* Lett. **30**, 906. **(4)** The one-dimensional CH_3-quantum rotator in solid 4-methyl-pyridene (1975) *J. Chem. Phys.* **63**, 4415. **(5)** High resolution neutron analyser (1981) *Nucl. Phys. & Solid State Phys.* (India) **24C**, 553.

Memberships: Fellow: INSA 85 • Member: IPA; Asia Pacific Soc. Materials.

Dasgupta, Chandan

Elected: 1992
Position: Prof., IISc, Bangalore
Specialization: Theoretical Condensed Matter Physics; Statistical Physics
Date and Place of Birth: 17 December 1951; Calcutta
Parents: Satyendranath Dasgupta and Shova
Spouse and Children: Sudeshna; one *d* (Isha)
Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3278 (O), (080) 2334 5417 (R)
email: cdgupta@physics.iisc.ernet.in; URL: http://physics.iisc.ernet.in/~cdgupta/

Education: Calcutta Univ.: BSc Hons 70; Delhi Univ.: MSc 73; Pennsylvania Univ., USA: PhD 78.

Career: Univ. of California, USA: Postgraduate Res. Fellow 78–80; Harvard Univ., USA: Postdoc Fellow 80–81; Univ. of Minnesota, USA: Asst Prof. 81–83, 84–86; IISc, Bangalore: Vis. Asst Prof. 83–84, INSA Res. Fellow 86–87, Asst Prof. 87–89, Assoc. Prof. 89–95, Prof. 95–.

Scientific Work: Elucidated the nature of phase transitions observed in superconductors, liquid crystals and Heisenberg ferromagnets. Constructed and analysed the behaviour of a number of neural network models of associative memory and developed a model for kindling of focal epilepsy. Carried out a number of investigations which have significantly enhanced the present understanding of the liquid-to-glass transition. Recent work on the statistical mechanics of flux lines provides explanations of a number of unusual features observed in the mixed phase of high-temperature superconductors.

Important Publications: **(1)** Low-temperature properties of the random Heisenberg antiferromagnetic chain (1980) *Phys. Rev.* **B22**, 1305. **(2)** Phase transition in a lattice model of superconductivity (1981) *Phys. Rev. Lett.* **47**, 1556. **(3)** Glass transition in the density functional theory of freezing (1992) *Europhys. Lett.* **20**, 131. **(4)** Effects of pinning disorder on the correlations and freezing of the flux liquid in layered super conductors (1994) *Phys. Rev. Lett.* **73**, 1023. **(5)** Growing length and time scales in glass-forming liquids (2009) *PNAS* **106**, 3675.

Memberships: Member: American Physical Soc • Fellow: INSA 99; NASI 2000; TWAS 2007.

Awards & Distinctions: Warner Teutsch Memorial Prize 74 • Alfred P Sloan Foundation Fellowship 84 • DAE-Raja Ramanna Prize 99 • J C Bose National Fellowship 2006.

Dasgupta, Somnath

Elected: 1997
Position: Prof., IISER-K, Mohanpur
Specialization: Metamorphic Petrology; Geochemistry; Precambrian Geology
Date and Place of Birth: 13 October 1951; Nagpur, Maharashtra
Parents: Amiya Kumar Dasgupta and Aparajita
Spouse and Children: Sumitra; one s (Suvodip)
Address: Indian Institute of Science Education & Research, (IISER-K), Mohanpur Campus, Post BCKV Main Campus, Mohanpur 741 252, India
Tel. (033) 2423 8057 (R), Mobile: 98311 67145
email: somnathdasg@gmail.com, somnathdg@rediffmail.com

Education: Jadavpur Univ.: BSc 71, MSc 74, PhD 79.

Career: GSI: Geologist 78–81; Jadavpur Univ.: Lecturer 81–90, Reader 90–97, Prof. 97–2007; IISER.: Prof. 2007–.

Scientific Work: Establishment of ultrahigh temperature of metamorphism (1000°C) at lower crustal depths (~35 kms) in the Eastern Ghats belt with systematic and rigorous geological mapping, detailed petrographic studies, interpretation of reaction textures (mostly in magnesian pelitic granulites and calc-silicate granulites), thermobarometry, and development of new petrogenetic grids. Documentation of an anticlockwise P-T trajectory of evolution of the Eastern Ghats granulites (based on reaction textures in natural rocks and their interpretation in new petrogenetic grids) and possible genetic model (magmatic under- or intra-plating), and the tectonic processes (manifesting in near isobaric cooling and near isothermal decompression that stabilized and exhumed part of the Indian lower continental crust. This work on Eastern Ghats granulites provided new evidence in favour of Indo-Antarctic correlation in the precambrian. Taking example from some calc-silicate granulites, it was shown that internal buffering of fluid was controlled by mineral reactions, interdependence of fluid variables and developed a new style of representing fluid compositions quantitatively. Developed a new technique to calculate the exhumation history of high grade rocks using garnet compositional zoning, and established a two-stage exhumation history for the higher Himalayan crystallines. Using careful thermobarometric approach, documented progressively increasing pressure temperature conditions towards higher structural levels – a conclusion that differs from others – and this study opens up tremendous possibilities to model inverse metamorphism in the Himalayas.

Important Publications: **(1)** Petrology of granulites from Anakapalle evidence for proterozoic decompression in the Eastern Ghats, India (1994) *J. Petrol.* **35**, 433–459. **(2)** Reaction textures in a suite of spinel granulites from the Eastern Ghats belt, India: Evidence for polymetamorphism, a partial petrogenetic grid in the system KFMASH and the roles of ZnO and Fe_2O_3 (1995) *J. Petrol.* **36**, 435–462. **(3)** Origin of grandite garnet in calc-silicate granulites: Mineral-fluid equilibria and petrogenetic grids (2005) *J. Petrol.* **46**, 1045–1076. **(4)** Inverted metamorphic sequence in the Sikkim Himalayas: Crystallization history, P-T gradient, and implications (2004) *J. Metamor. Geol.* **22**, 395–412. **(5)** Petrology of an inverted Barrovian sequence of metapelites in Sikkim Himalaya: Constraints on the tectonics of inversion (2007) *Am. J. Sci.* **309**, 43.

Memberships: Fellow: INSA 99; NASI 2001; TWAS 2007; Alexander von Humboldt Foundation.

Awards & Distinctions: N N Chatterjee Medal, Asiatic Soc. 80 • Career Award, UGC 88 • Krishnan Medal, Indian Geophysical Union 89 • Mercator Guest Prof. (Germany) • DST J C Bose Fellowship.

Dash, Anadi Charan

Elected: 1992
Specialization: Physical Inorganic Chemistry
Date and Place of Birth: 2 March 1941; Cuttack, Orissa
Parents: Udayanath Dash and Rupa Devi
Spouse and Children: Bidulata; three *d* (Mamata, Sabita, Sanjakta)
Address: 14(P), 369 Gajapati Nagar, Bhubaneshwar 751 005, India
Tel. (0674) 230 1707 (R), Mobile: 94377 77730
email: acdash1@rediffmail.com

Education: Utkal Univ.: BSc Hons 62, MSc 64, PhD 74.

Career: Ravenshaw College, Cuttack: Lecturer 64–68; Utkal Univ., Bhubaneswar: Lecturer 68–83, Reader 83–90, Prof. 90–2001, Emeritus Sci. (CSIR) 2001–06; State Univ. of New York, USA, Dept of Chem.: Vis. Lecturer 80; Inst. Material Sci., Bhubaneswar: Hon. Prof. 2006–07; NISER, Bhubaneswar: Vis. Prof. 2007–.

Scientific Work: Investigated the rates and equilibria of ligand substitution and electron transfer reactions of transition metal complexes in solution. Elucidated the mechanisms of reactions of octahedral cobalt (III), nickel (II), iron (III), aluminium (III) and gallium (III) complexes. Models of electron transfer reactions of innersphere type were provided through the kinetic studies of binuclear complexes. Effects of coordination on ligand reactivities were demonstrated. Model reactions in micellar and mixed solvent media were used to explore the role of medium on the kinetics, mechanistic aspects and thermodynamics of reactions. Synthesis, X-ray crystal structure, spectroscopy, photochemistry and electrochemistry of transition metal complexes were pursued.

Important Publications: **(1)** Reactions of coordinated ligands. I. Kinetics and mechanism of hydrolysis of N-salicylidinaniline in the presence metal ions (1969) *J. Am. Chem. Soc.* **91**, 6944–6947. **(2)** Mechanistic information from the micellar effect on the base hydrolysis of (3-NO_2-salicylato) (tetren)cobalt (III) ion (1986) *Inorg. Chem.* **25**, 2237–2241. **(3)** Decarboxylation of hydrogencarbonatopentaamminecobalt (III) in aqua-organic solvent media, (1991) *J. Chem. Soc. Faraday Trans.* **87**, 3753–3759. **(4)** Kinetics and mechanism of formation, acid catalysed aquation, reversible anation and photochemical reactions of trans (aqua)(sulfito-S)[N,N′-ethylene bis (salicylidiniminato)] cobaltate (III) in aqueous medium (2000) *J. Chem. Soc., Dalton Trans.* 1949–1958. **(5)** A new octahedral cobalt (III) complex of (1,8) bis (2-hydroxybenzamido) 3, 6 diazaoctane incorporating phenolate, amide, amine coordination: Synthesis, X-ray crystal structure, ligand substitution and redox activity with sulfur (IV) and L-ascorbic acid (2008) *Transit. Metal. Chem.* **33**, 39–53.

Memberships: Member: American Chemical Soc. 81–91; Indian Soc. for Surface Sci. Technol. 98; Orissa Bigyan Acad. 2005 • Fellow: Indian Chemical Soc. 77; Royal Soc. of Chemistry 88–2003.

Awards & Distinctions: Convention Award of the Indian Chemical Soc. 83 • V S R Gupta Chemistry Teacher of the Year Award 2001.

Dastidar, Pranab Rebatiranjan

Elected: 1975
Specialization: Electronics; Controls; Nuclear Power
Date and Place of Birth: 1933; Chittagong, Bengal
Parents: Rebati Ranjan and Pratibha
Spouse and Children: Jyotsna; one *s*, two *d*
Address: F-3, Rajkunj Co-op. Housing Society, Wadhavli, Chembur, Bombay 400 074
Tel. (022) 2553 4498 (R)
email: pranabd2002@yahoo.co.in

Education: Bombay Univ.: BE 54; Univ. of Manchester, UK: PhD 57.

Career: Ecko Electronics, UK: 57–59; BARC, Bombay: 60–90; International Atomic Energy Agency: 88–94.

Scientific Work: Initiated the indigenous semiconductor device laboratory from scratch at BARC. For the defence forces developed, for the first time, electronic variable time fuse with ruggedize d solid state devices for artillery shells. Involved in the reactor control systems for the first indigenous fast reactor critical facility PURNIMA, designed and installed in BARC. Supervised the designing and installation of the control system for the Arvi satellite communication Earth Station. Supervised the control system for the Dehradun Earth Station which was designed upto the then prevailing world modernization status. Was in charge of designing and fabrication of the installation of electronic trigger mechanism for the peaceful nuclear explosive device. Associated at the scientific and technical level with design, installation, trouble shooting of all the reactors and power reactors in Department of Atomic Energy. Carried out and directed mostly review work on the design, operation and economic competitiveness aspects of nuclear power worldwide from global perspective. Two big studies on safer advanced reactors and on the comparative aspects of different energy sources which included nuclear power and renewal energy sources, from the point of view of economics, technology and environmental and health impacts were initiated.

Awards & Distinctions: Padma Shri 75.

Dastur, Jehangir Fardunji*

Elected: 1934
Specialization: Plant Pathology
Date and Place of Birth: 10 September 1886; Bhavnagar, Gujarat
Last Address: Indian Agricultural Research Institute, New Delhi, India
***Deceased:** 11 May 1971

Education: Univ. of Bombay: BSc 1909.

Career: Govt of Central Provinces: Mycologist.

Scientific Work: Discovered the disease of castor oil plant caused by *Phytophthora parasitica*. This new species in several parts of the world was one of the most destructive species of fungi. Studies on smuts and bunts are well known and demonstrated the actual modes of infection of *Tilletia triticina* (*T. foetida*), the smooth-spored bunt). Extensive studies also carried out on die-back disease of chillies (*Glomerella cingulata* = *Collectotrichum capsici*). Undertook the earliest investigations in India of the mosaic virus disease of sugarcane.

Memberships: Fellow: INSA 48; President: Indian Phytopathol. Soc. 47

Datta, Alok Kumar

Elected: 1996
Position: CSIR Emeritus Sci., IICB, Kolkata
Specialization: Nucleic Acid Enzymology, Protein Chemistry; Parasitology; Recombinant DNA Technology
Date and Place of Birth: 10 November 1946; Jabalpur, Madhya Pradesh
Parents: Amal Kumar Datta and Gita
Spouse and Children: Sanghamitra; one *s*, one *d*
Address: Indian Institute of Chemical Biology, 4, Raja S C Mullick Road, Jodavpur, Kolkata 700 032, India
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email: alokdatta@iicb.res.in, mail_alokd@yahoo.co.in

Education: Calcutta Univ.: BSc 67, MSc 69, PhD 74.

Career: Oak Ridge National Lab, USA: Postdoc Investigator 74–76; Bose Res. Inst., Calcutta: Res. Offr 77–78; Univ. of North Carolina, USA: Faculty Assoc. 79–84; Indian Inst. of Chemical Biology: Sci. 84–2006, CSIR Emeritus Sci. 2007.

Scientific Work: Was the first to reconstitute ribosome in India and show its biological function. Discovered an enzyme responsible for messenger RNA turnover. Discovered a novel isomerase-independent chaperone function of cyclophilin. Delineated the mechanism of cyclosporin A resistance of *L. donovani.* Identified, characterized and established that adenosine kinase of purine auxotrophic parasites could be an exploitable target for development of chemotherapeutic regimen. Was involved in delineation of mechanism of antiherpetic drug, acyclovir.

Important Publications: **(1)** Isolation and characterization of adenosine kinase from *Leishmania donovani* (1987) *J. Biol. Chem.* **262**, 12, 5515–5521. **(2)** Immunochemical and catalytic characteristics of adenosine kinase from *Leishmania donovani* (1989) *J. Biol. Chem.* **264**, 8, 4356–4361. **(3)** Lack of abundance of cytoplasmic cyclosporin A-binding protein renders free-living *Leishmania donovani* resistant to cyclosporin A (2001) *J. Biol. Chem.* **276**, 22, 19294–19300. **(4)** A single-domain cyclophilin from *Leishmania donovani* reactivates soluble aggregates of adenosine kinase by isomerase-independent chaperone function (2002) *J. Biol. Chem.* **277**, 49, 47451–47460. **(5)** Amino acid residues of *Leishmania donovani* cyclophilin key to interaction with its adenosine kinase: Biological implications (2007) *Biochemistry* **46**, 26, 7832–7843.

Memberships: Fellow: INSA 2005; Soc. of Biological Chemists, India.

Awards & Distinctions: I S Bhatia Memorial Award • Soc. of Biological Chemists, India 2005.

Datta, Asis

Elected: 1992
Position: Prof. of Eminence, Natl Centre for Plant Genome Res., New Delhi
Specialization: Biochemistry; Molecular Biology; Genetic Engineering
Date and Place of Birth: 2 February 1944; Taki, West Bengal
Parents: S C Datta and Bina
Spouse and Children: Kasturi; one *d*, one *s* (Sudeshna and Kaustuv)
Address: National Centre for Plant Genome Research, Aruna Asaf Ali Marg, P.O. Box 10531, JNU Campus, New Delhi 110 006, India
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email: asis_datta@rediffmail.com, asisdatta@hotmail.com; URL: www.nipgr@res.in

Education: Calcutta Univ.: BSc 62, MSc 64, PhD 68, DSc 74.

Career: Bose Inst., Calcutta: Fellow 64–68; Public Health Res. Inst., USA: Res. Assoc. 68–71; Univ. of California, USA: Asst Virologist 71–73; JNU, New Delhi: Assoc. Prof. 73–77, Prof. 78, Dean 83–85, Rector 93–96, Vice Chancellor 96–2002, Roche Inst. of Molecular Biology, USA: Vis. Sci. 76–77, 80–81; National Inst. of Plant Genome Res. Dir 2002–08, Prof. of Eminence 2008–.

Scientific Work: Isolated and characterized, for the first time, allosteric enzymes to demonstrate their role in the regulation of amino sugar metabolism in animal tissues. Did original work on the replication of lipid enveloped circular double stranded DNA bacterial virus (PM2). Discovered novel DNA polymerase as one of the structural proteins of the bacteriophage PM2 – the first report of the presence of an enzyme inside the bacterial virus. Discovered N-acetylglucosamine catabolic pathway in *Candida albicans (C. albicans)*. Developed a model system to study gene expression in a simple eukaryotic. Reported for the first time the involvement of Ca^{2+}, calmodulin and protein phosphorylation in morphogenesis of *C. albicans*. Isolated and characterized novel genes encoding glucosamine-6-phosphate deaminase and aspartyl proteinase from *C. albicans* to demonstrate their involvement in the pathogenicity of *C. albicans*. Reported presence of signal transduction system in *C. albicans* similar to that of *Saccharomyces cerevisiae* mating pathway. Worked on eukaryotic protein synthesis and contributed to genetic engineering and plant molecular biology. Isolated two novel genes – oxalate decarboxylase gene and seed-specific protein gene with an aim to improve the nutritional quality of the cereals and legumes.

Important Publications: **(1)** Analysis of the inducible GlcNAc catabolic pathway gene cluster in *Candida albicans* (2000) *Proc. Natl. Acad. Sci. USA* **97**, 14218–14223. **(2)** Increased nutritive value of transgenic potato by expressing a nonallergenic seed albumin gene from *Amaranthus hypochondriacus* (2000) *Proc. Natl. Acad. Sci. USA* **97**, 3724–3729. **(3)** Oxalate decarboxylase from *Collybia velutips* (2000) *J. Biol. Chem.* **275**, 7230–7238. **(4)** Molecular cloning of a gene encoding a seed specific protein with nutritionally balanced amino acid composition from *Amaranthus* (1992) *Proc. Natl. Acad. Sci. USA* **89**, 11774–11778. **(5)** Purification, characterisation and cDNA cloning of inducible oxalate decarboxylase from *Collybia velutipes* (1991) *J. Biol. Chem.* **266**, 23548–23553.

Memberships: Fellow: NASI 91; INSA 88; TWAS 98.

Awards & Distinctions: S S Bhatnagar Prize 80 • B C Guha Memorial Award 88 • G D Birla Award 91 • FICCI Award for R & D in Life Sciences 94 • Om Bhasin Award 95 • Ranbaxy Award 99 • Padma Shri 99 • Padma Bhushan 2008.

Datta, Asoke Gopal*

Elected: 1979
Specialization: Biochemical Endocrinology; Enzymology; Carbohydrate Metabolism
Date and Place of Birth: 20 January 1928; Calcutta
Parents: Satya Gopal Datta and Kamala Bala
Spouse and Children: Anima; one *s*
Last Address: Department of Life Science and Biotechnology, Jadavpur University, Calcutta 700 032, India
***Deceased:** 9 December 2005

Education: Calcutta Univ.: BSc 48, MSc 50, DPhil 54.

Career: Bengal Immunity Res. Inst., Calcutta: Res. Asst 51–55; NRC, Ottawa: Postdoc Res. Fellow 55–57; Public Health Res. Inst., New York: Postdoc Res. Fellow 57–60; Bose Inst. and Indian Inst. of Exp. Medicine, Calcutta: Pool Offr 61–64, Sci. 65–69, Emeritus Sci. 89–92; Roche Inst. of Mol. Biol., New Jersey: Vis. Sci. 73–74; Jadavpur Univ., Calcutta: Vis. Prof. 92–2005.

Scientific Work: Demonstrated the existence of a new pathway for the utilization of glucose in *Acetobacter melanogenum*. Isolated for the first time enzyme glycolaldehyde in transketolase reaction. Discovered erythrose as an inhibitor of the growth of *Vibrio cholera*. Demonstrated the biosynthesis of thyroxine in extra-thyroidal tissue. Established the role of erythropoietin on the stability and lipid biogenesis of RBC membrane. Established for the first time the occurrence of gluconeogenesis in brain.

Memberships: Fellow: INSA 81; Physiological Soc. of India; Soc. of Nuclear Medicine; West Bengal Acad. of Sci.; Indian Sc. Congress; Soc. of Biological Sci.

Datta, Basudeb

Elected: 2009
Position: Prof., IISc, Bangalore
Specialization: Combinatorial and pl Topology; Combinatorial and Differential Geometry
Date and Place of Birth: 6 February 1957; Hooghly, West Bengal, India
Parents: Chandi Charan Datta and Durga
Spouse and Children: Ajanta Datta; one *d* (Ipsita)
Address: Department of Mathematics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3211 (O), (080) 2341 3118 (R)
email: dattab@math.iisc.ernet.in; URL: http://math.iisc.ernet.in/~dattab/

Education: Calcutta Univ.: BSc 78, MSc 80; ISI: PhD 88.

Career: TIFR, Mumbai: Vis. Fellow 88–90; ICTP, Trieste: Vis. Mathematician 90; ISI, Bangalore: Vis. Sci. 90–92; IISc, Dept of Mathematics, Bangalore: Asst Prof. 92–99, Assoc. Prof. 99–2005, Prof. 2005–.

Scientific Work: Working mostly in combinatorial geometry and combinatorial topology. Contribution in combinatorial geometry is the determination of all the convex n-gons of a given diameter which maximize perimeter provided n is not a power of two. First work in combinatorial topology was the first theoretical proof of existence and uniqueness of Kuehnel's remarkable 9-vertex complex projective plane. In later work, found a remarkably short and elegant proof of this result. A widely quoted work structure theorem for pseudomanifolds, leading to a complete determination of all d-dimensional pseudomanifolds on $< d + 5$ vertices for all d. An important result says that all degree regular triangulations of the torus admit vertex-transitive automorphism groups. Another result from the same paper is the determination of all n for which the Klein bottle admits an n-vertex degree regular triangulation. This is one of the papers in a long series of results on equivelar polyhedra. In another work, showed that any combinatorial triangulation of 4-sphere which is not a combinatorial 4-sphere requires at least 13 vertices. Has shown that any triangulation of a non-simply connected closed manifold of dimension $d > 2$ requires at least $2d + 3$ vertices, and there is a unique such triangulation on $2d + 3$ vertices, triangulating a sphere-bundle over the circle. Its proof is a beautiful mix of topological, geometric and combinatorial arguments. Recently, found a self-contained combinatorial proof of the lower bound theorem for normal pseudomanifolds, including a treatment of the cases of equality in this theorem.

Important Publications: **(1)** A discrete isoperimetric problem (1997) *Geometriae Dedicata* **64**, 55–68. **(2)** A structure theorem for pseudomanifolds (1998) *Discrete Mathematics* **188**, 41–60. **(3)** Equivelar polyhedra with few vertices (2001) *Discrete Comput. Geometry* **26**, 429–461. **(4)** Degree regular triangulations of torus and Klein bottle (2008) *Proc. Indian Acad. Sci.* (*Math. Sci.*) **115**, 279–307. **(5)** Minimal triangulations of sphere bundles over the circle (2008) *J. Comb. Theory* **A115**, 737–752.

Memberships: Life member: Ramanujan Mathematical Soc.; Advanced Computing and Communications Soc., India.

Awards & Distinctions: C V Raman Young Scientist Award 2001.

Datta, Bhaskar*

Elected: 1995
Specialization: High Energy Astrophysics; Astro-particle Physics; General Relativity
Date and Place of Birth: 1 July 1949; New Delhi
Parents: Dhaniram Datta and Aparajita
Spouse and Children: Jayati; one *d* (Madhurima)
Last Address: Indian Institute of Astrophysics, Koramangala, Bangalore 560 034
***Deceased:** 3 December 1999

Education: Univ. of Delhi: BSc Hons 68, MSc 70; City Univ. of New York, USA: PhD 77.

Career: NASA, Goddard Inst. for Space Studies, USA: Res. Assoc. 74–77; Univ. of Florida, USA, Dept of Physics: NSF Postdoc Fellow 77–78; Intl Centre for Theoretical Phys., Italy: Vis. Fellow 78; TIFR, Bombay: Vis. Fellow 78–82; IIA: Vis. Fellow 82–83, Fellow 83–86, Reader 86–90, Assoc. Prof. 90–95, Prof. 95–99.

Scientific Work: Research concerning neutron stars include the formulation of the equation of state, the effect of quark matter on the cooling of neutron stars, general relativistic effects of rotation on the structure and radiation characteristics of neutron stars and the evolution of their magnetic fields. Derived nuclear partition function and showed importance of Pauli exclusion principle for gravitational collapse of stars. Work in the area of astro-particle physics involved derivation of a lower bound on the axion rest mass, the role of QCD phase transition on primordial nucleosynthesis and derivation of a lower limit on quark compositeness energy scale. Showed that the ratio of photon to muon pair productions can serve as an efficient signal for formation of quark plasma in heavy-ion collisions.

Memberships: Member: Intl Astronomical Union • INSA Golden Jubilee Biren Roy Trust Fellowship 84.

Datta, Kasturi

Elected: 1997
Position: INSA Sr Sci., JNU, New Delhi
Specialization: Biochemistry; Molecular and Cell Biology; rDNA Technology and Human Genome Function
Date and Place of Birth: 14 March 1943; Calcutta, West Bengal
Parents: Manoj Mohan Bose and Sushama
Spouse and Children: Asis Datta; one *s*, one *d* (Kaustuv, Sudeshna)
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Tel. (011) 2670 4327 (O), (011) 0124 4205590(R), Mobile: 98103 26590
email: kdatta@mail.jnu.ac.in, datta_k@hotmail.com

Education: Calcutta Univ.: BSc 62, MSc 64, PhD 68.

Career: UCLA, USA: Biochemist 70–73; CSIR/ICMR: Pool Offr 73–77; JNU, New Delhi: Asst Prof. 77–85, Assoc. Prof. 85–90; UGC, Prof: Grade Sci. 90–93, Prof. 93–2008, INSA Sr Sci. 2008–.

Scientific Work: Initially identified a novel protein from rat tissue that has specific affinity towards hyaluronan and was immunologically cross-reactive with human protein too. Utilizing this observation, identified the human homologue of this gene by immunoscreening the expression library, named it HABP1, confirmed its localization on human chromosome 17p13.3 and placed this novel gene on the map of human genome project. Continued efforts confirmed the multifunctionality of this protein; established its role in cellular signalling; studied the oligomeric behaviour of this protein with special reference to its functional implications exhibited through its inhibitory effect on cell growth, if overexpressed in simple eukaryotic cells and mammalian cell lines, apoptosis induction associated along with ROS generation and mitochondrial dysfunction due to its mitochondrial accumulation. Finally, its differential expression in tumour tissues and its involvement in cancer progression prompted to use it as a marker for early diagnosis and treatment of male infertility.

Important Publications: **(1)** Molecular cloning of human fibroblast hyaluronic acid binding protein confirms its identify with P–32, A protein copurified with splicing factor SF2 (1996) *J. Biol. Chem.* **271**, 2206–2212. **(2)** Assignment of CDNA encoding hyaluronic acid-binding protein 1 to human chromosome 17p12-13 (1998) *Genomics* **51**, 3, 476–477. **(3)** Structural flexibility of multifunctional HABP1 may be important for regulating its binding to different ligands (2003) *J. Biol. Chem.* **278**, 30, 27464–27472. **(4)** Excessive reactive oxygen species induces apoptosis in fibroblasts: Role of mitochondrially accumulated hyaluronic acid binding protein 1 (HABP1/p32/gC1qR)(2008) *Exp. Cell Res.* **314**, 651–667. **(5)** Evidence for inhibitory interaction of hyaluronan binding protein 1 (HABP1/p32/gC1qR) with *Steptococcus pneumoniae* hyalurodinase (2009) *J. Biol. Chem.* **284**, 6, 3897–3905.

Memberships: Member: Guha Res. Conf. 90 • Fellow: NASI 91; INSA 93.

Awards & Distinctions: Ranbaxy Award for Basic Medical Science 99 • Chemito Award for Life Science 2000 • Prof. MRN Prasad Memorial Lecture Award, INSA, New Delhi 2000 • Senior Women Bioscientist Award, DBI 2001 • Dr. Darshan Ranganathan Memorial Lecture, INSA, New Delhi 2003 • FICCI Award 2004 • 25th G P Chatterjee Memorial Award, Indian Science Congress 2005 • Basanti Devi Amir Chand Award, ICMR, 2005 • Hari Om Trust J C Bose Award, UGC 2005.

Dattagupta, Sushanta

Elected: 1992
Position: Dir, IISER, Kolkata
Specialization: Condensed Matter Physics; Non-equilibrium Statistical Mechanics
Date and Place of Birth: 19 December 1947; Giagunj, West Bengal
Parents: B K Dattagupta and Nilima
Spouse and Children: Ranu; two *d* (Shahana, Sharmistha)
Address: Indian Institute of Science Education & Research (IISSER-K), NITTTR Campus, Block - FC, Sector III, Salt Lake, Kolkata 700 016
Tel. (033) 2337 6771, (033) 2587 3017, (033) 2321 0701 (R), Mobile: 94330 13858
email: director@iiserkol.ac.in, sushantad@gmail.com

Education: Calcutta Univ.: BSc 65, MSc 67; Brookhaven Lab., St John's Univ., USA: PhD 74.

Career: Presidency College, Calcutta: Lecturer 68–69; Carnegie-Mellon Univ., USA: Postdoc. Fellow 73–75; Univ. of Alberta, USA: Res. Assoc. 75–76; Indira Gandhi Centre for Atomic Res., Kalpakkam: Sci. Offr 76–81; Central Univ., Hyderabad, School of Phys.: Reader 81–86; INSA: Res. Fellow 87–89; JNU, School of Physical Sciences: Prof. 89–99; S N Bose Natl Centre for Basic Sci., Kolkata: Dir 99–2005; IISER, Kolkata: Programme Co-ordinator 2005–06, Dir 2006–.

Scientific Work: Given a unified statistical mechanical approach to numerous spectroscopic studies of relaxation phenomena based on correlation functions. Investigated relaxation effects in a variety of problems using stochastic models. Contributed to the understanding of relaxation phenomena in condensed matter. Proposed the importance of orientational ordering in the basic mechanism of liquid–solid freezing and the glass transition. Worked on quantum dissipative systems which touches on very fundamental aspects of irreversible behaviour in quantum systems. Has recently focussed attention to relaxation in nanomagnets and domain dynamics in ferroelectric films. Further work has also been carried out in mesoscopic phenomena and quantum information please.

Important Publications: **(1)** Orientational order in liquids—a possible scenario of freezing (1985) *Phys. Rev. Lett.* **54**, 2359. **(2)** *Relaxation phenomena in condensed matter physics* (1987) Academic Press, New York. **(3)** Landau diamagnetism in a dissipative and confined system; (with J Singh) (1977) *Phys. Rev. Lett.* **79**, 961. **(4)** *Dissipative phenomena in condensed matter* (2004) Springer-Verlag, Heidelberg. **(5)** *A paradigm called magnetism* (2008) World Scientific Press, Singapore.

Memberships: Fellow: INSA 94; NASI 95; TWAS 99.

Awards & Distinctions: INSA Young Sci. Medal 77 • Raja Ramanna Prize • C V Raman Award • NASI M N Saha Award Lecture • DST JC Bose Fellowship

David, Joy Caesarina*

Elected: 1982
Specialization: Neuropharmacology; Clinical Pharmacology; Pharmacokinetics of Drugs; Involvement of Adenosive in Experimental Epilepsy
Date and Place of Birth: 3 May 1927; Palghat, Kerala
Parents: P Gopal Rao and G D Paul
Spouse and Children: Singaram David; one s
Last Address: 292, 4th Main, 1st Block, Koramangala, Bangalore 560 034, India
***Deceased:** 20 April 2004

Education: Univ. of Madras, CMC, Vellore: MBBS 52, MSc 57.

Career: Univ. of Illinois, Chicago: Instructor and Asst Prof. 57–63; Hindustan CIBA GEIGY Res. Centre, Bombay, Dept of Pharmacology: Head 64–85; St. Johns Medical College, Bangalore: Consultant 85–2004.

Scientific Work: Derived and applied mathematical models to quantitate EEC responses in studying drug effects on the brain. Characterized the cholinergic neurotransmitter at lateral geniculate body synapses. Screened about 20,000 synthetic and natural products for detecting CNS and CVS active compounds for drug development leading to the neuropharmacological characterization of an antidepressant drug, nitroxazepine. Developed new animal models of human brain disorders such as Parkinson's disease, depression, aggressive behaviour, insomnia and deficit learning and memory. Research in the field of experimental epilepsy which has gained international recognition, development of a successful preadolescent primate model of absence (petit mal) seizures. Developed primate models of chronic epilepsy for long-term behavioural, neurological, toxicological and pharmacokinetic studies of new antiepileptic agents. Studied the electrophysiological and neuropharmacological aspects on peripheral nerve function in diabetic rats and the role of aldose reductase inhibitors in reducing nerve and lens sorbitol levels and improving nerve conduction velocity and reducing cataracts.

Memberships: Member: Indian Epilepsy Assn; Indian Pharmacological Soc. • Fellow: Maharashtra Acad. of Sci.

Davis, Trupapur Antony*

Elected: 1979
Specialization: Crop Science; Plant Physiology
Date and Place of Birth: 9 February 1923; Tamil Nadu
Spouse and Children: Eunice Thomas; three s
Last Address: J B S Haldane Research Centre, Carmel Nagar, Nagercoil 629 004, India
***Deceased:** 10 November 1989

Education: Univ. of Madras: BA 44, PG 47; ISI, Calcutta: PhD 72.

Career: Univ. of Madras: Res. Fellow 45–47; Sugarcane Breeding Inst., Coimbatore: Botany Asst; 47–48; Sugarcane Res. Station, Haryana: Superintendent 48–52; Central Coconut Res. Station, Kerala: Plant Physiologist 52–60; Indian Statistical Inst., Calcutta: Prof. & Head (Crop Section Unit) 60–72, Prof.-in-Charge (Biology Dn) 72–76; J B S Haldane Res. Centre, Nagercoil: Dir 82–89.

Scientific Work: Researched in productive differences in plants based on foliar arrangement; reconstructed the sunflower head, a problem which remained unsolved for a century; demonstrated geophysical influence on the form and function of plants and animals; linked elementary mathematics and statistics with biology. Working on coconut palms made the staggering discovery that trees whose leaves were arranged in a left-handed spiral gave a higher yield without the use of extra fertilizer or any special breeding programme. Discovered that levo- and dextro-rotatory asymmetry in plants is non-genetic and came from the unique application of statistics and mathematics to aspects of plant and animal life.

Memberships: Fellow: Intl Soc. of Plant Morphologists; NASI; Indian Sci. Congress Assn; Indian Statistical Inst.; Indian Soc. for Plantation Crops.

de Mello, I Froilano*

Elected: 1934
Specialization: Microbiology; Parasitology
Date and Place of Birth: 17 May 1877, Benaulim
Parents: Constancio Francisco de Mello and Delfina Rodrigues
Spouse and Children: Hedwig Bachmann; three *s*, three *d*
Last Address: Medical Service in Portuguese India, Nova Goa
***Deceased:** 9 January 1955

Education: MD; Kaiser Willhelm Inst. fuer Biologie Berlin; PG in Parasitology 22–23.

Career: Escola Medico-Cirurgica de Goa: Prof 10; The Sorbonne, Paris: Asst Prof 13–14, Operator; Portugal: Vis. Prof. 21; Bacteriological Inst., Panjim: Dir 14–45; Member of Parliament in Lisbon 45; Medical Service in Portuguese India, Nova Goa: Dir General.

Scientific Work: Held many portuguese honours. Established TB Sanitarium in Margao in 1928 and founded the first leprosarium in Asia in Goa in 1934. Well-known for efforts to help eradicate malaria in Goa. Arranged for mapping the entire area of Old Goa to discover the sources of malaria. Involved in frontally attacking two other diseases: tuberculosis and leprosy. Discovered thousands of protozoa, parasites, microbes and viruses, many of which bear the Latin name given by him followed by the name 'de Mello'. Studies on blood microfilaria of Indian birds enabled identification of no less than 28 new trypanosomes registered under his name as being new to sciences.

Important Publications: **(1)** *A la Veille du Centenaire* (1941) **(2)** *O Cantic da Vida na Poesia Tagoreana* (1946).

Memberships: Member: Royal Asiatic Soc. of Bengal; Societie de Pathologic Exotique.

Awards & Distinctions: Medals of Honour from Queen Willelmina, Netherlands 38 and Pope Ibius XII.

Deb, Bidyendu Mohan

Elected: 1984
Position: Adjunct Prof., IISER, Kolkata
Specialization: Theoretical Chemistry; Chemical Physics
Date and Place of Birth: 27 September 1942; Comilla, Bangladesh
Parents: Manindra Mohan and Saroj Kumari
Spouse and Children: Mridula; one *s*, one *d*
Address: Indian Institute of Science Education & Research (IISER–K), Mohanpur Campus Post BCKV Main Campus Mohanpur 741 252, Dist. Nadia, India
Tel. (033) 2424 5644 (R)
email: bmdeb@yahoo.co.in

Education: Calcutta Univ.: BSc 61, MSc 64; Dip in Advanced Maths (PG) 66; Univ. of Oxford, UK: DPhil 69.

Career: CSIR: Pool Offr 69–70; BITS, Pilani: Asst Prof. 71–72; IIT, Bombay: Lecturer, Asst Prof. 73–78; Panjab Univ., Chandigarh: Prof. 84–2004; JNCASR, Bangalore: Vikram Sarabhai Res. Prof. 2004–07; IISER, Kolkata: Prof. 2007–.

Scientific Work: Research related to force concept in chemistry, single-particle density in chemistry, classical interpretation of quantum mechanics. Highlighted the role of electron-nuclear attractive forces in molecular geometry, and the only molecular orbital model that can predict the gross shapes of molecules without making any calculations. Introduced an internal stress tensor for many-electron systems, and studied chemical binding through this tensor. Fluid-dynamical concept in many-electron systems has provided access to classical-interpretations of quantum phenomena in three-dimensional space.

Memberships: Member: Intl Union of Pure and Applied Chemistry • Fellow: INSA 87.

Awards & Distinctions: S S Bhatnagar Prize 81 • C V Raman Award 88.

Deb, Kalyanmoy

Elected: 2006
Position: Prof., IIT Kanpur
Specialization: Optimization Design; Genetic Algorithms; Multiobjective Optimization
Date and Place of Birth: 29 April 1962; Udaipur, Tripura
Parents: Kumud Chandra Deb and Chaya Rani
Spouse and Children: Debjani; one *s*, one *d* (Debayan, Dhriti)
Address: Department of Mechanical Engineering, Indian Institute of Technology, Kanpur 208 016, India
Tel. (0512) 259 7205, (0512) 259 7668 (O), (0512) 259 8310 (R), Mobile: 99362 19063
email: deb@iitk.ac.in; URL: http://www.iitk.ac.in/kangal/deb.htm

Education: IIT Kharagpur: BTech Hons 85; Univ. of Alabama, USA: MS 89, PhD 91.

Career: EIL, New Delhi: Asst Engg 85–87; Univ. of Illinois, USA: Vis. Res. Asst Prof. 91–92; IIT Kanpur: Asst Prof. 93–97, Assoc. Prof. 97–99, Prof. 99–.

Scientific Work: Specializes in research, development and application of optimization methods in scientific and engineering problem-solving tasks. Pioneered in the area of multi-objective evolutionary optimization and proposed the revolutionary idea of finding multiple optimal solutions in a single simulation run. Inclusion of robust, reliable, multi-modally, nonlinearity-handling methodologies made the use of optimization in practice easier and simpler.

Important Publications: **(1)** *Multiobjective optimization using evolutionary algorithms* (2001) Wiley, Chichester, UK. **(2)** *Optimization for engineering design* (1985) Prentice-Hall, New Delhi. **(3)** A fast and elitist multi-objective genetic algorithm: NSGA-II (2002) *IEEE Trans. Evol. Comput.* **6**, 2, 181–197. **(4)** An efficient constraint handling method for genetic algorithms (2000) *Comput. Methods Appl. Mech. Eng.* **186**, 311–338. **(5)** Scope of stationary multi-objective evolutionary optimization: A case study on a hydro-thermal power dispatch problem (2008) *J. Global Optimization* **41**, 4, 479–515.

Memberships: Fellow: Indian Natl Acad. of Engg 2004; Intl Soc. on Genetic and Evolution Computation 2003.

Awards & Distinctions: Humboldt Fellow 98–99 • Fredrick Wilhelm Bessel Res. Award, Germany 2004 • S S Bhatnagar Prize 2005 • Finland Dist. Prof. 2007 • MCDM Edgeworth–Pareto Award 2008.

Deekshatulu, Bulusu Lakshmana

Elected: 1980
Specialization: Control Systems, Digital Image Processing; Pattern Recognition; Remote Sensing
Date and Place of Birth: 31 October 1936; Aska, Orissa
Parents: B Ramakrishna Murthy and B Gavaramma
Spouse and Children: Venkata Kameshwari; three *d* (Kanchana, Uma Prabha, Anuradha)
Address: 10-3-123/3, East Maredpalli, Secunderabad 500 026, India
Tel. (040) 2313 4015 (O), (040) 2773 2423 (R), Mobile: 99084 99081
email: deekshatulu@hotmail.com

Education: BHU: BSc 58; IISc, Bangalore: ME 60, PhD 64.

Career: IISc, Bangalore: Lecturer 64–65, Asst Prof. 65–69, Assoc. Prof. 69–70, Prof. 70–77; IBM Watson Res. Centre, USA: Vis. Sci. 71–72; NRSA, Hyderabad, Tech. Dn: Head 76, Dir 89–97; Centre for Space Sci. and Technology Education in Asia & Pacific, Dehra Dun: Dir 97–2002; Univ. of Hyderabad: ISRO Vis. Prof. 2002–.

Scientific Work: Developed different methods for analysis of control systems. Responsible for developing remote sensing technology and image processing applications, including leading to the development of a drum scanner, a photowrite system and a host of electro-optical instruments for interpreting remote sensing data. Also contributed to methods for Content Based Image Retrieval (CBIR).

Important Publications: **(1)** Xn_X plane for analysis of certain second-order non-linear systems (1963) *IEEE Trans. Appl. Industry* **69**, II. 315–317. **(2)** Constant-time loci in the phase-phase for non-linear systems (1965) *J. Franklin Inst.*, USA **280**, 6, 474–482. **(3)** A method of solving time varying differential equations (1966) *Int. J. Control*, London **3**, 4, 345–357. **(4)** On an asymptotic method of Krylov-Bogolinbov for over damped non-linear systems (1969) *J. Franklin Inst.* **288**, 1. **(5)** A modified Gabor function for CBIR (2007) *Pattern Recog. Lett.* **28**, 293–300.

Memberships: Fellow: INSA 85; NASI 86; IETE; Astronautical Soc. of India; Computer Soc. of India; Aeronautical Soc. of India.

Awards & Distinctions: National Systems Award 74 • Bharat Ratna Sir M Viswesvarayya Award 84 • NRDC Invention Award 86 & 93 • Biren Roy Space Scientist Award 88 • Padma Shri 91 • Brahm Prakash Memorial Award 92. • Bhaskara Award 93 • Om Prakash Bhasin Award 95 • Astronantical Soc. Award 2002 •

Deepak Kumar

Elected: 1987
Position: Prof., JNU, New Delhi
Specialization: Condensed Matter Physics; Statistical Mechanics; Quantum Mechanics
Date and Place of Birth: 1 April 1946; New Delhi
Parents: Iqbal Behari Lal and Kashmiran Pyari
Spouse and Children: Meenu; one *s*, one *d* (Sharad, Jyoti)
Address: School of Physical Sciences, Jawaharlal Nehru University, New Delhi 110 067, India
Tel. (011) 2616 1907, (011) 2674 2507 (O), (011) 2674 2680 (R)
Mobile: 98100 98971
email: dk0700@mail.jnu.ac.in, dkjnu@hotmail.com

Education: Delhi Univ: BSc Hons 65, MSc 67; Pennsylvania Univ., USA: PhD 72.

Career: Univ. of Pennsylvania, USA: Teaching Asst Res. Fellow 67–72; Univ. of Roorkee: Res. Assoc. 72–74, Lecturer 74– 76, Reader 76–88; JNU: Prof. 88–.

Scientific Work: Studied magnetism and disordered systems relating to electronic states, spin waves, phase transitions and critical phenomena, percolation and fractal aspects, spin glasses, relaxation, hierarchical systems; alloys: Surface segregation, phase diagrams, nucleation; thermoelectric power of superconductors, hopping conduction in cluster compounds, Coulomb glass, two-level systems and measurement theory of quantum mechanics, heat conduction anomalies and diffusion in one dimension, electromagnetically-induced transparency for information processing.

Important Publications: **(1)** Dynamics of an antiferromagnet at low temperatures (1971) *Phys. Rev.* **B3**, 961–1024. **(2)** Surface segregation in binary alloys (1976) *J. Phys.* **F6**, 725–39. **(3)** Mode condensation in a hierarchical system (1986) *Phys. Rev. Lett.* **57**, 3101–3104. **(4)** Variable-range hopping: Role of Coulomb interactions (1999) *Phys. Rev.* **B59**, 4752–4765. **(5)** Patterns in melting snow and vapour deposited layers (2004) *Phys. Rev. Lett.* **92**, 254502, 1–4.

Awards & Distinctions: Alexander von Humboldt Fellow 78–79 • S S Bhatnagar Prize 88 • ICTP Sr Assoc.

Deo, Madhav Gajanan

Elected: 1976
Specialization: Pathology; Oncology Medical Education
Date and Place of Birth: 6 April 1932; Gwalior, Madhya Pradesh
Parents: G R Deo and Annapurna
Spouse and Children: Kumudini; one *s*, one *d* (Avinash, Kavita)
Address: C-13, Kubera Gulshan Apartments, D P Road, Aundh, Pune 411 007, India
Tel. (020) 2544 9649 (O), (020) 2589 3128 (R), Mobile: 99224 03266
email: deo.madhav@gmail.com

Education: Agra Univ.: MBBS 55; AIIMS, New Delhi: MD 60, PhD 64.

Career: AIIMS, New Delhi: Demonstrator in Biochem. 56–57, Demonstrator in Pathology 57–61, Asst Prof. 61–68, Assoc. Prof. 68–74, Prof. 74–78; Univ. of Seattle, USA: Rockfeller Foundation Fellow 65–66; NIH, USA: Vis. Sci. 81; Univ. of Paris, France: Vis. Prof. 90; Cancer Res. Inst, Mumbai: Dir; Cancer Res. Inst: Dir 78–95; NIH, USA: Fogarty Scholar-in-Residence 96–97; SSR Ctr Medical Studies and Res., Mauritius: Dir 98–2002; Mov. Acad. Med. Biomed., Pune: Vice-President and Secretary 2001.

Scientific Work: Developed a novel concept of 'Mobile Workshops' as a means of taking new knowledge to students doorsteps. Developed first indigenous leprosy vaccine which made India a front-runner in the field. Discovered a new growth modulator that enhances cellular binding of the epidermal growth factor through a novel mechanism. Work on oncogenes in tobacco-associated oral cancer, number one cancer type in males in India, provided a new insight into its molecular biology. Identified a novel oncogene. Developed the first non-human primate Kwashiorkar model in rhesus monkeys. Researched on Himalayan endemic goitre providing useful data for National Goitre Control Programme.

Important Publications: **(1)** Cell regeneration in protein deficiency (1967) *Nature* **216**, 499. **(2)** Undergraduate medical students research in India (2008) *J. Postgrad. Med.* **54,** 176. **(3)** Kinetics of mobilization of neutrophils and their marrow pool in protein-calorie deficiency (1976) *Blood* **48**, 865. **(4)** High frequency mutation in codons 12 and 61 of H-ras oncogene in chewing tobacco-related human oral carcinomas in India (1991) *Br. J. Cancer* **63**, 573. **(5)** Further studies on the enhancing factor and its possible mechanism of action (1986) *J. Cell Physiol.* **127**, 183.

Memberships: Fellow: INSA 74; NAMS 77; NASI 91.

Awards & Distinctions: Khanolkar Prize 66–67 • Shakuntala Amir Chand Prize 66–67 • Amrut Mody Res. Foundation Award 72 • Om Prakash Bhasin Award 88 • Padma Shri 90 • R D Birla National Award 92 • Medical Council Silver Jubilee Res. Award 92 • Jawaharlal Nehru Centenary Vis. Fellowship 93 • Lifetime Achievement Award, Assn of Indian Pathologists, North America, 2008.

Deodikar, Govind Balakrishna*

Elected: 1974
Specialization: Sericulture; Cytogenetics; Plant Breeding
Date and Place of Birth: 15 November 1915; Deodi, Maharashtra
Parents: Balakrishna Deodikar and Yamunabai
Spouse and Children: Saraswatibai; one *s*, five *d*
Last Address: Maharashtra Association for the Cultivation of Science Research, Pune, India
***Deceased:** 13 March 1986

Education: Univ. of Poona: BSc 37, LLB 40, PhD 42.

Career: Dept of Agri., Bee-keeping and Sericultural Laboratories: Geneticist and Plant Breeder 42–50, Hon. Cytogeneticist 54–60; Maharashtra Assn for the Cultivation of Sc. Res., Pune: Dir 60–80, Prof. Emeritus 80–86.

Scientific Work: Significant research achievements were in cytogenetics and crop breeding. In *Coccinea indica*, reported the association of sex chromosomes with nucleolus for the first time among angiosperms. In an attempt to establish silk industry in rural sector in Maharashtra, made a two-pronged approach to the problem. Developed many new strains of mulberry and simultaneously evolved more productive strains of silk worm. Undertook external fertilization of eggs of Nistid Yellow, a strain of *Bombyx mori* with semen of *Philosamia ricini* and reared the larvae from such eggs. Though there was no nuclear fusion, it was an induced anomalous parthenogenesis. In wheat breeding, interspecific hybridization among various tetraploid species of *Triticum,* resulted in selecting MACS-9, a derivative of *durum x polonicum*, which was released in peninusular India. Studied karyotypic analysis and meiotic chromosome behaviour in 4*n Triticum* species which led to the conclusion that speciation and isolation mechanism might have taken place gradually by accumulation of structural and genetic changes.

Memberships: Fellow: INSA 77; President: Indian Soc. of Genetics and Plant Breeding; Indian Palynological Soc. • Chmn: ISI Apiary Industry Sectional Committee.

Desai, Bhimbai Nichhabhai*

Elected: 1934
Specialization: Meteorology
Date and Place of Birth: 3 July 1901; Abrama, Surat Dist, Bombay
Parents: Nichhabhai Raghunathji Desai and Manchhaben
Spouse and Children: Shantaben; one *s*, one *d*
Last Address: 173, Swami Vivekananda Road, Vile Parle (West), Bombay 400 056, India
***Deceased:** 23 June 1978

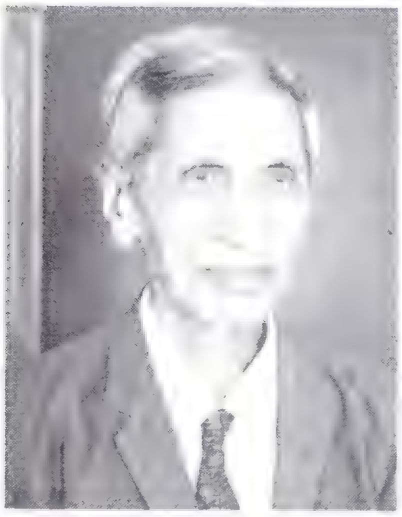
Education: BA, LLB; Bombay Univ.: MSc 26; Edinburgh Univ.: PhD 28, DSc 38.

Career: India Meterological Dept: Asst Meteorologist 28–42, Meteorologist 42–46, Dir 46–55, Dy Dir General of Observatories 55–56; Wilson College, Bombay: Hon. Prof. 42.

Scientific Work: Colloidal solutions under different conditions-dialysis, dilution, ageing effect, mutual coagulation, effect of light, effect of electrolysis, gels, precipitation in gels including Leisegang rings, conductivity and viscosity of strong electrolytes and variety of allied problems. Pioneer of the forecasting service in India. Devoted considerable time to research in synoptic meteorology.

Important Publications: Contributed 96 papers on various subjects such as cyclonic storm, monsoon, western disturbances and thunderstorms.

Desai, Ranchhodji Dajibhai*



Elected: 1939
Specialization: Organic Chemistry; Chemical Technology
Date and Place of Birth: 4 May 1897; Umarsadi, Gujarat
Spouse and Children: Raksha; one *s*, one *d* (Prashant, Meenal)
Last Address: Ram Krupa, Behind Bhagini Samaji Halar Cross Road, Bulsar 396 001, India
***Deceased:** 16 November 1991

Education: AIISc 24; Bombay Univ.: MSc 26; Univ. of London: DSc 31.

Career: IISc, Bangalore: Res. Fellow 21–24; Imperial College of London: 24–31; Wilson College, Mumbai: Asst Prof. 24–31; Aligarh Univ.: Reader 31–38, Prof. 38–43; V J Institute, Mumbai: Prof. 43–48; Gujarat Univ., Ahmedabad: Principal 50–58; M G Sci. Inst.: Principal 58–69.

Scientific Work: Contributed to organic chemistry researched in areas like the strainless character of alkylcyclopentane and alkylcyclohexane rings on the basis of valency deflexion hypothesis; studies in Pechmann, Kostanecki, Fries and Friedel–Crafts reactions; jautomerism of heterotriads; new methods for the synthesis of coumarins, chromones, xanthones, quinolones, acritones and phenanthridones; Y-substitution in aromatic compounds; vat-dyes from phenanthraquinone; azoic dyes using hydroxyketones and dihydroresorcinols as coupling components; and fluorescent brightening agents. In applied chemistry, also made significant contributions to the subjects of azo-dyes, wetting agents and fluorescent brightening agents.

Memberships: Fellow: INSA 42; Royal Inst. Chem. 32; FIISC 38; Indian Chemical Soc. 35 • President: Indian Inst. of Chemists 67–68.

Awards & Distinctions: K G Naik Gold Medal 58 • Sir P C Ray Memorial Medal 65 • INSA Golden Jubilee Commemoration Medal 85.

Desai, Shirishkant Varajray*

Elected: 1935
Specialization: Biochemistry; Microbiology
Date and Place of Birth: 28 January 1900; Kalol Panchmahal, Bombay Presidency
Parents: Varajray Santokray Desai and Trambakba
Spouse and Children: Kumud Raeji; two s (Anupam, Ahurva)
Last Address: Jaya Cottage, Manchhubai Road, P.O. Malad Suburban, Bombay 400 046, India
***Deceased:** 1984

Education: BSc, PhD, DIC.

Career: Govt of Punjab, Lyallpur: Agri. Bacteriologist; Indian Agri. Res, Inst., Delhi: Dn of Chemistry; Sahu Chemical Ltd, Dalminagai: Agronomist.

Scientific Work: (a) Researched on yeasts associated with Mohwa flowers and introduced promising yeasts in pure culture fermentation of alcohol; (b) industrial problems of fermentation and utilization of waste products; (c) worked on bacteriophages and developed a theory of bacterial cyclostages; (d) suggested new theory on the etiology of virus diseases; (e) influence of microbial activities such as nitrification on soil fertility; evolved a new method of tray cultures for commercial preparation of efficient legume cultures; (f) discovered a new process for production of butanol and acetone by fermentation of molasses; (g) carried out studies on phosphorus intakes of dairy cattle and how manuring affects nutrition; (h) preliminary studies on nutritional diseases of plants and their spectroscopic diagnosis; (i) evolva new theory that phosphorus in soil governs the amount of nitrogen retained in soil and that phosphorus is the most important element for vegetables and animal kingdom.

Deshpande, D L *

Elected: 1944
Date of Birth: 2 September 1909
Last Address: College of Engineering, Trivandrum, India
***Deceased:** 5 April 1961

Education: BSc (Hons), MSc, AMI, Mech E (London), MIE.

Career: College of Engg, Trivandrum: Principal.

Scientific Work: Worked on critical velocity of water; design of piers by model experiments; salt and salinity of the Humber; wear of IC cylinder; detonation; combustion in engines; and grease lubrication for locomotives

Deshpande, Suresh Madhusudhan

Elected: 1974
Position: Prof., Sr Res. Assoc., JNCASR, Bangalore
Specialization: Computational Fluid Dynamics; Meshfree Methods; Data Assimilation
Date and Place of Birth: 7 March 1942; Katol, Maharashtra
Parents: Madhusudan Deshpande and Usha
Spouse and Children: Mrunalini; one *s*, one *d*
Address: Engineering Mechanics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2816 (O), (080) 2341 2029 (R), Mobile: 94484 71243
email: smd@jncasr.ac.in, desh1942@hotmail.com; URL: http://www.jncasr.ac.in/faculty_templates/default/index.php?menu_id=1&user_id=10

Education: Nagpur Univ.: BE 63; IISc, Bangalore: ME 65, PhD 70.

Career: IISc, Bangalore, Dept of Aerospace Engg: Lecturer 69–74, Asst Prof. 74–79, Assoc. Prof. 79–84, Prof. 84–2004; NASA Langley Res. Centre: Sr Res. Assoc. 83–85; JATP: Convenor 93–2004; JNCASR, Bangalore: Sr Res. Assoc. 2004–.

Scientific Work: The basic CFD work includes new algorithm development such as kinetic schemes, peculiar velocity based scheme, wave-particle splitting idea and grid free scheme for obtaining numerical solutions of problems in gas dynamics. Convergence acceleration devices such as multigrid and GMRES have been extensively investigated. A novel way of preconditioning has been developed. A new line of research called kinetic finite element method (KFEM) has been started. Direct numerical simulation (DNS) of incompressible viscous flow work is yet another area of basic CFD research started at CFD Lab of the Department of Aerospace Engineering. In the aerospace applications, area extensive code development for practical configurations has been taken up very vigorously.

Important Publications: **(1)** The Boltzmann collision integrals for a combination of Maxwellians (1969) *J. Fluid Mech.* **36**, 3, 545–554. **(2)** On the connection between the elliptic equations of the Navier–Stokes type and the theory of harmonic functionals (1973) *Quart. Appl. Math.* 43–52. **(3)** The statistical particle-in-cell method for multicomponent gases (1983) *USSR J. Comput. Maths. Math. Phys.* **23**, 1, 117–122. **(4)** Kinetic flux vector splitting for Euler equations (1994) *Comput. Fluids* **23**, 2, 447–478. **(5)** *Theory and applications of 3-D LSKUM based on entropy variables* (2001) ICFD Oxford University, UK.

Memberships: Member: American Inst. of Aeronautics and Astronautics.

Awards & Distinctions: Biren Roy Trust Award 91 • Astronautical Soc. of India Award 95 • Distinguished Alumnus of Visvesvaraya National Inst. of Technol., Nagpur • Eminent Prof. of Aerospace Engineering, Chandigarh Branch of Aeronautical Soc. of India, 96 • ISRO Sponsored Prof. Satish Dhawan Chair 2000–03 • IISc Alumni Award for Excellence in Research 2001 • DRDO Academic Excellence Award 2002 • Distinguished Prof. of Aerodynamics Res. & Edn SAROD 2005.

Desikachary, Thamarapu Vedantha*

Elected: 1957
Specialization: Phycology
Date and Place of Birth: 18 September 1919; Tirupati, Andhra Pradesh
Parents: T Sundarachari and Mangammal
Spouse and Children: Chellammal; two *s* (Srikrishnan and Sridhar)
Last Address: Madras University, 121, Santhome High Road, Madras 600 028, India
***Deceased:** 4 November 2005

Education: Madras Univ.: BSc 40, MSc 44, PhD 51, DSc 63.

Career: Andhra Univ.: Demonstrator 45–46; Pachaiyappa's Coll., Madras; Asst Prof. 46–47; Univ. of Madras: Jr Lecturer 47–48, Lecturer 57–59, Reader 59–64, Prof. 66–75, Emeritus Prof. 76; Saugar Univ: Lecturer 51–57.

Scientific Work: Interest in diatoms included study of both living and fossil diatoms. Significant contributions towards elucidation of phylogeny and inter-relationship, in charophytes. Critical studies on morphology and life hsitories of red algae; postulated that isolation and insulation are key processes in the vital phenomenon of sexual reproduction and reduction division in living systems as also the survival of genetically altered cells, such as zygotes meiocytes, *in situ* mutants, etc. Propounded a theory of isolation and insulation of special cells.

Important Publications: **(1)** *Taxonomy of algae* (1980) Univ. of Madras, 600 pp. **(2)** Status of classicial taxonomy (1973) *Biology of blue green algae,* Blackwell, London. **(3)** *Atlas of diatoms: Fasc. IV. Marine diatoms from the Arabian Sea and Indian Ocean* (1988) Madras Sci. Foundation, Vol. 7, pp. 332–400. **(4)** A systemic account of some marine Myxophyceae of the South Indian Coast (1944) *J. Madras Univ.* **16B,** 37–68.

Memberships: Fellow: INSA 66 • President: Phycological Soc. of India.

Awards & Distinctions: C V Raman Medal of Univ. of Madras 59 • V Puri Gold Medal of India, Bot. Soc. 80.

Desiraju, Gautam Radhakrishna

Elected: 1993
Position: Prof., Solid State Structural Chemistry Unit, IISc, Bangalore
Specialization: Structural Chemistry; Crystal Engineering; X-ray Crystallography.
Date and Place of Birth: 21 August 1952; Madras, Tamil Nadu
Parents: Desiraju Ramachandra Rao and Shakuntala
Spouse and Children: Krishna; two *s* (Madhar, Govind)
Address: Solid State Structural Chemistry Unit, IISc, Bangalore 560 012, India
Tel. (040) 2313 4828, (040) 2004 0567 (O), (040) 2293 3311 (R)
email: gautam_desiraju@yahoo.com URL: http://sscu.iisc.ernet.in/prg/faculty/GRD/index.htm

Education: Bombay Univ.: BSc 72; Univ. of Illinois: MS 74, PhD 76.

Career: Eastman Kodak Company, Rochester: Res. Staff 76–78; IISc, Bangalore: Res. Fellow 78–79, Prof. 2009–; Univ. of Hyderabad: Lecturer 79–84, Reader 84–90, Prof. 90–2009; E I du Pont de Nemours & Co: Vis. Res. Sci. 88–89.

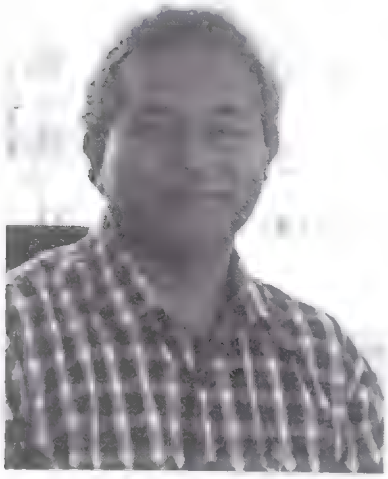
Scientific Work: Has played a major role in the development and growth of the subject of crystal engineering, which is the designed synthesis of functional molecular solids, and the relevance to this subject of intermolecular interations such as the weak hydrogen bond. One of the most highly cited scientists in India with nearly 15000 citiations to his scientific papers.

Important Publications: **(1)** Supramolecular synthons in crystal engineering – a new organic synthesis (1995) *Angew. Chem.* **107**, 2541–2557, *Angew. Chem. Int. Ed. Engl.* **34**, 2311–2327. **(2)** The C–H···O hydrogen bond: structural implications and supramolecular design (1996) *Acc. Chem. Res.* **29**, 441-449. **(3)** C–H···F interations in the crystal structures of some fluorobenzenes (1998) *J. Am. Chem. Soc.* **120**, 8702–8710. **(4)** Correspondence between molecular functionality and crystal structures. Supramolecular chemistry of a family of homologated aminophenols (2003) *J. Am. Chem. Soc.* **125**, 14495–14509. **(5)** Structural studies of the system $(Na^+)(\text{saccharinate}^-)(H_2O)_n$. A model for crystallization. (2005) *Angew. Chem. Int. Ed.* **44**, 2515–2520.

Memberships: Member: British Crystallographic Assn; American Crystallographic Assn • Fellow: INSA 2001; NASI 2001; Royal Soc. of Chem; TWAS 2002; Hungarian Chemical Soc. 2006; American Assn for the Advancement of Science 2009; European Acad. of Sci. 2009.

Awards & Distinctions: IASc Assoc. 85–88 • TWAS Award in Chemistry 2000 • Humboldt Forschungspreis, 2000 • Member: INSA Council 2006–08, Executive Committee, Intl. Union of Crystallography 2006–11.

Dev, Bhupendra Nath



Elected: 2006
Position: Sr Prof., IACS, Kolkata
Specialization: Surface & Nanoscale Physics; X-ray Physics; Ion-solid Interactions
Date and Place of Birth: 15 November 1953; Boulpur, Bangladesh
Parents: Hrishikesh Dev and Parul
Spouse and Children: Sushmita; one *d*
Address: Department of Materials Science, Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 4971/200 (O), (033) 2334 5258 (R), Mobile: 94338 47131
email: msbnd@iacs.res.in

Education: Rajshahi Univ., Bangladesh; BSc 75, MSc 77; Saha Inst. of Nuclear Physics, Kolkata: Post MSc Dip 78; State Univ. of New York at Albany, USA: PhD 85.

Career: TIFR, Mumbai: Sr Sci. Asst 78–80; SUNY, New York: Teaching/Res. Asst 80–85; Hamburg Synchrotron Radiation Lab, Germany: Guest Sci. 85–88; Inst. of Physics, Bhubaneswar: Sr Lecturer 88–92, Asst Prof. 92–98, Assoc. Prof. 98–2004, Prof. 2004–2008; IACS., Kolkata: Adjunct Prof. 2005–06, Prof. 2006–07, Sr Prof. 2007–.

Scientific Work: Experimental investigations of structure and melting of ultrathin layers of materials on single-crystal semiconductor surfaces. Also theoretical studies of geometrical and electronic structure of such ultrathin layers. In the early 90s, initiated a research programme on surface physics in Institute of Physics, Bhubaneswar. This involved setting up ion scattering techniques, X-ray techniques (X-ray standing wave, X-ray reflectivity) and a molecular beam epitaxy (MBE) facility coupled with a variable temperature scanning tunnelling microscope (STM). Important contributions include work on shape transition in epitaxial island growth, self-assembled growth of nanostructures on single-crystal surfaces and their quantized heights on atomic scale, single-electron tunnelling and manifestation of quantum capacitance in single-electron tunnelling, ion beam induced surfaces smoothing and fractal surfaces. For the analysis of layered synthetic microstructures, developed a technique involving standing waves of X-rays, providing the full theoretical development and experimantal demonstration. In the area of X-ray physics, other contributions include resonance enhancement of X-ray intensity in layered systems.

Important Publications: **(1)** First-principles investigation of location and electronic structure of adsorbed halogen atoms on semiconductor surfaces (1984) *Phys. Rev.* **B29**, 1101. **(2)** Geometrical structures of the Ge/Si (111) interface and the Si (111)(7 x 7) surfaces (1986) *Phys. Rev. Lett.* **57**, 3058 (1987) *Phys. Rev. Lett.* **59**, 1790. **(3)** An RBS study of interdiffusion across a brominated Si (111)/Cu interface with and without a barrier layer (1993) *Nucl. Instrum. Meth.* **B73**, 63. **(4)** X-ray standing wave and reflectometric characterization of multilayer structures (2001) *Phys. Rev.* **B63**, 245409. **(5)** Probing atomic migration in nanostructured multilayers: Application of X-ray standing wave fields (2007) *Phys. Rev. Lett.* **98**, 196103.

Memberships: Fellow: West Bengal Acad. of Sci. and Technol. 2007.

Awards & Distinctions: Presidential Distinguished Doctoral Dissertation Award 85 • Materials Res. Soc. of India Medal 2003 • Marie Curie Intl Fellow of European Union 2005.

Devadatta, S C*

Elected: 1936
Last Address: 12, Krishna Nagar, Vellore 1 (North Arcot District), Madras, India
***Deceased**

Education: Univ. of Bombay: BSc; Univ. of Edinburgh: DSc.

Career: Wilson College, Dept of Chemistry: Prof. and Head; Christian Medical College, Vellore: Prof. of Biochemistry and Physiology.

Scientific Work: Worked on distribution of lactate between corpuscles and plasma in blood, especially of pernicious anaemia patients, biological assay of proteins and vitamin A in prawns, fish, pulses, compounds of phosphorous in milk and muscle, analysis of tubers fruits, fish, pulses and prawns from the nutritional point of view.

Devaprabhakara, Devadas*

Elected: 1976
Specialization: Organic Chemistry; Chemistry of Allenes; Chemistry of Medium-ring Dienes and Trienes; Organoboranes
Date and Place of Birth: 13 November 1932; Nanjanagud, Karnataka
Parents: Hassan Devadas and Elizabeth
Spouse and Children: Joan; one *s*, one *d*
Last Address: Department of Chemistry, IIT, Kanpur 208 016, India
***Deceased:** 12 January 1978

Education: Mysore Univ.: BSc Hons 54, MSc 55; Univ. of Texas, USA: PhD 62, Postdoc Fellow 64.

Career: Univ. of Mysore: Lecturer 55–59; IISc, Bangalore: Pool Offr 64, Vis. Prof. 74–75; IIT Kanpur: Lecturer 64–66, Asst Prof. 66–71, Assoc. Prof. and Head of Chem. Dept 71–77.

Scientific Work: In the area of alicyclic chemistry, studied reactivity of cyclic allenes and medium ring dienes. Dissolving metal reductions and electrophilic additions to these systems, allowed access to novel molecular structures at the same time providing ample scope for probing unusual mechanistic pathways. Study of hydroboration and the chemistry of organoboranes led to the synthesis of a number of highly strained and novel cyclic hydrocarbons. Studies on oxymercuration quoted in the literature of organometallic chemistry. Using the methodologies developed, synthesized some interesting terpenoid natural products. Approach to the synthesis of benzacyclopropenes is considered to be unusual and unique. Work has led to the rationalization of some very interesting reactions and has proven to have considerable predictive value.

Memberships: Member: Chemical Soc. of London; Chemical Soc. of India.

Awards & Distinctions: S S Bhatnagar Prize 76 • Basudev Banerjee Gold Medal and Award 73.

Dey, Gautam Kumar

Elected: 2008
Position: Head, Materials Sci. Dn, BARC and Prof., Homi Bhabha National Inst., Bombay
Specialization: Phase Transformations in Metals & Alloys; Electron Microscopy; Metallic Glasses and Nanocrystalline Materials
Date and Place of Birth: 8 June 1957; Bhagalpur, Bihar
Parents: B K Dey and Sovona
Spouse and Children: Sharmila; two *d*
Address: Materials Science Division, Bhabha Atomic Research Centre, Trombay, Mumbai 400 085, India
Tel. (022) 2559 5063 (O), (022) 2550 2075 (R), Mobile: 99201 97258
email: gkdey@barc.gov.in, gautam_k_dey@yahoo.com

Education: BHU, Varanasi: BTech 79; BARC: Advanced Course in Nuclear Engg; 80; BHU: PhD 88.

Career: BARC: Sci. Offr 80–2007, Prof. and Head, Material Sci. Dn 2007–; Univ. of Cincinnati, USA: Postdoc Fellow 94–96.

Scientific Work: Carried out integrated and comprehensive study on binary and ternary zirconium based metallic glasses, encompassing diverse aspects, with a view to establishing the nature of the amorphous phase in zirconium based alloys in terms of structure, properties, stability and applications. Established the technique for production of bulk metallic glasses and composite of bulk metallic glass and tungsten fibre. Contributions in the area of novel processing methods include synthesis of nanocrystalline solids and quasi-crystalline solids and combustion synthesis of a variety of intermetallic compounds including NiTi, the shape memory alloy. Work in the area of high-resolution electron microscopy has enabled characterization of the structure of electronic materials, nano-tubes, nanocrystalline materials and multilayered materials at an atomic level. Competently demonstrated how detailed transmission electron microscopy can be employed in unravelling mechanisms of phase transformations and deformation behaviour of multiphase alloys.

Important Publications: **(1)** Micropyretic synthesis of NiTi in propagation mode (2003) *Acta Mater.* **51**, 2549. **(2)** Laser surface alloying of nickel by molybdenum and aluminium: Microstructural studies (1994) *Acta Metall.* **42**, 2973. **(3)** Phase in Zr 20 Nb alloy, Formation of a shock deformation induced (2004) *Acta Mater.* **52**, 5243. **(4)** Ordering and PCP phase precipitation in a Ni 25 at.% Mo 5 at. % Al (2004) *Acta Mater.* **52**, 2711. **(5)** A new high-pressure phase transition in a zirconium niobium alloy (2002) *Philos. Mag. Lett.* **82**, 333.

Memberships: Fellow: INAE 2008.

Awards & Distinctions: INSA Young Scientist Award 89 • Young Metallurgist Award 89 • Metallurgist of the Year 2003 • Award MRSI Medal 2001 • Vasvik Award 2005.

Dhar, Deepak

Elected: 1990
Position: Prof., TIFR, Mumbai
Specialization: Statistical Physics; Stochastic Processes
Date and Place of Birth: 30 October 1951; Pratapgarh, Uttar Pradesh
Parents: Murli Dhar and Rama
Spouse and Children: Manju; two *d* (Surabi, Prachee)
Address: Theoretical Physics Group, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2427 (O), (022) 2280 4835 (R)
email: ddhar@theory.tifr.res.in

Education: Univ. of Allahabad: BSc 70; IIT Kanpur: MSc 72; California Inst. of Technol., USA: PhD 78; TIFR, Bombay: Postdoc Fellowship 78–80.

Career: TIFR, Bombay: Vis. Fellow 78–80, Fellow 80–86, Reader 86–90, Assoc. Prof. 90–95; Prof. 95–; Univ. de Pierre et Marie Curie, France: Res. Assoc. 84–85.

Scientific Work: Work has been in the general area of theoretical statistical mechanics. Studied the critical behaviour of random walks and polymer chains on fractals. Emphasized the role of rare large clusters in determining the longtime relaxation in disordered ferromagnets. Found some interesting exact results for the directed animals enumeration problem, and the abelian sandpile models of self organized criticality.

Important Publications: **(1)** Self-organized critical state of sandpile automaton models (1990) *Phys. Rev. Lett.* **64**, 1613. **(2)** Lattices of effective nonintegral dimensionality (1977) *J. Math. Phys.* **18**, 577. **(3)** Exact solution of a directed site animals enumeration problem in 3 dimensions (1983) *Phys. Rev. Lett.* **57**, 853. **(4)** Pico-canonical ensembles: A theoretical description of metastable states (2002) *Physica* **A315**, 5. **(5)** An exactly soluble model of interfacial growth (1987) *Phase Trans.* **9**, 51.

Awards & Distinctions: IASc Assoc. 83–86 • INSA Young Scientist Award 83 • S S Bhatnagar Prize 91 • Condensed Matter Physics ICTP Prize 93 • S N Base Medal 2001 • TWAS Prize 2002.

Dhar, Moti Lal*

Elected: 1975
Specialization: Medicinal Chemistry
Date and Place of Birth: 29 October 1914; Srinagar, Jammu & Kashmir
Parents: Dina Nath and Posh-I-Kuj
Spouse and Children: Mohini; two s (Jawahar, Naveen)
Last Address: B-1, Pamposh Enclave, Greater Kailash-1, New Delhi 110 048, India
***Deceased:** 20 January 2002

Education: Univ. of Punjab: BSc Hons 36, MSc 37; London Univ: PhD 40.

Career: Drug Res. Lab., Jammu and Kashmir: Chemist 40–50; CDRI, Lucknow: Sr Sci. Offr 50–51, Asst Dir 51–62, Dy Dir 62–63, Dir 63–74; BHU, Varanasi: Vice Chancellor 77–79.

Scientific Work: Research covers organic reaction mechanisms; medicinal plants of India; fertility control; chemotherapy of mycobacterial and protozoal infections including tuberculosis, leprosy, amoebiasis, filariasis and helminthic disorders; neuro-muscular blocking, and hypoglycaemic and hypotensive agents. Initiated programmes for the synthesis of new chemotherapeutic agents, for the treatment of mycobacterial infections (tuberculosis, leprosy), filariasis and amoebiasis, three major health problems of particular relevance to India at that time. In this design of synthesis, drugs, applied the principles of mechanistic organic chemistry to the functioning of biological systems and to the design of chemotherapeutic agents. Initiated a programme of broad-spectrum biological screening of extracts of plants identified and collated by CDRI botanists from different ecological regions of the country. More than 4000 plants have then for been collected, extracted and screened and the data analyses.

Memberships: Fellow: INSA 60; Institution of Chemists • Chmn: Kanpur IIT Board of Governors • President: NASI 70–72.

Awards & Distinctions: Padma Shri 71.

Dhar, Sasindra Chandra*

Elected: 1935
Specialization: Applied Mathematics
Last Address: College of Science, Nagpur, India
***Deceased:** 30 October 1947

Education: Calcutta Univ.: MSc 16, DSc 23; Univ. of Edinburgh: DSc 34.

Career: Calcutta Univ.: Lecturer 18; College of Sci., Nagpur, Dept of Mathematics: Prof.

Scientific Work: Made notable contributions to Mathieu's equation, theorems in the geometry of masses, and elliptic cylinder functions.

Memberships: Fellow: Royal Soc. of Edinburgh.

Dharmalingam, Kuppamuthu

Elected: 1993
Position: Prof., Madurai Kamaraj Univ.
Specialization: Molecular Genetics; Genetic Engineering; Biotechnology
Date and Place of Birth: 3 January 1949; Ponnaigoundanur, Tamil Nadu
Parents: S Kuppamuthu Gounder and Arumani
Spouse and Children: Manonmani; one *s*
Address: School of Biotechnology, Madurai Kamaraj University, Madurai 625 021, India
Tel. (0452) 245 9115, (0452) 245 9280 (O), (0452) 245 8448 (R)
email: kdharmalingam@vsnl.com

Education: Madurai Kamaraj Univ.: BSc 68, MSc 70, PhD 74.

Career: Tufts Medical School, Boston: Sr Res. Assoc. 75–81; Madurai Kamaraj Univ.: Reader 81–87, Prof. 87–97, Head and Co-ordinator, School of Biotechnol. 87–2003, Sr Prof. 97–.

Scientific Work: Biological significance of the restriction systems became obvious with discovery of the anti-restriction systems, encoded by phage and bacterial genomes. Demonstrated the induction of mutagenic SOS repair by restricted DNA and alleviation of restriction by the SOS functions. Discovered the anti exonuclease V protein and the regulation of its transcription by a novel lexA independent SOS system. Worked in the Rgl restriction system. Cloned and sequenced genes encoding the RglA and RglB proteins. Examined, using modern methods, the transcriptional and translational regulation of the above systems. Started on a totally new *Streptomyces* system and discovered an industrially significant process, which allowed the elimination of DNA sequences whose presence leads to genetic instability in *Streptomyces*. Recently isolated a mutant of *S. peucetius* which sporulates in liquid culture, opens up new possibilities to study the genetics of adriamycin production.

Memberships: Fellow: NASI 94 • Member: American Soc. of Microbiology; Genetic Soc.; Soc. of General Microbiology; New York Sc Academy.

Awards & Distinctions: S S Bhatnagar Prize 92.

Dharmatti, Shrinivasa Shridhar*

Elected: 1959
Specialization: Magnetochemistry
Date and Place of Birth: 8 May 1911; Gokak, Dist Belgaum, Karnataka
Last Address: 8, Anand Bhawan, Bhulabhai Desai Road, Mumbai 400 026
***Deceased:** 2 May 1965

Education: Univ. of Bombay: MSc 36, PhD 39.

Career: Inst. of Sci., Bombay: Asst Lecturer 42–48; Univ. of Southern Calif., USA: Res. Assoc. 48–50; Stanford Univ., USA: Res. Assoc. 50–52; TIFR, Bombay: Reader 52–60, Assoc. Prof. 60–63, Prof. 63–65.

Scientific Work: Part of pioneering experiments in nuclear magnetic resonance techniques (NMR). Using this technique, measured the nuclear magnetic moments of several nuclei very precisely. With a high resolution electromagnet and a very stable NMR spectrometer, found three resonance peaks due to hydrogen nuclei from three different chemical environments of hydrogen ethyl alcohol.

Dhavale, Dilip Dattatray

Elected: 2009
Position: Prof., Univ. of Pune
Specialization: Synthesis of Natural Products; Carbohydrate Chemistry; Photochemistry; Reaction Mechanism; Medicinal Chemistry
Date and Place of Birth: 18 February 1956; Walhe, Maharashtra
Parents: Dattatray Namdeo Dhavale
Spouse and Children: Varsha; two *s*
Address: Department of Chemistry, University of Pune, Pune 411 007, India
Tel. (020) 2569 1727 (O), (020) 2588 4172 (R), Mobile: 94225 21594
email: ddd@chem.unipune.ernet.in

Education: Univ. of Pune: BSc 74, MSc 76, PhD 84.

Career: Univ. of Pune: Micro-Analyst 78–84, Lecturer 84–95, Reader 95–2006, Prof. 2006–.

Scientific Work: Has taken keen interest to introduce micro-scale techniques in organic practicals at post-graduate and graduate levels. Has significantly contributed in the area of carbohydrate chemistry especially in the synthesis and study of glycosidase inhibitory and immunomodulatory activities of the iminosugars. Other research areas include the rhodium carbenoid chemistry, photolysis and cycloaddition reactions in the synthesis of biologically active natural products.

Important Publications: **(1)** Chiron approach to the synthesis of (2S,3R)-3-hydroxypipecolic acid and (2R,3R)-3-hydroxy-2-hydroxymethyl piperidine from D-glucose (2008) *J. Org. Chem.* **73**, 9, 3619–3622. **(2)** Synthesis of 1-deoxy-1-hydroxymethyl- and 1-deoxy-1-epi-hydroxymethyl castanospermine as new potential immunomodulating agents (2007) *J. Med. Chem.* **50**, 5519–5523. **(3)** An efficient synthesis of D-erythro and D-threo sphingosine from D-glucose: Olefin cross metathesis approach (2005) Org. Lett. **7**, 5805–5807. **(4)** Syntheses of griseolic acid analogues (2003) *J. Org. Chem.* **68**, 4531–4534. **(5)** Electronic effects in migratory groups. [1, 4]- versus [1, 2]-rearrangement in rhodium carbenoid generated bicyclic oxonium ylides (2001) *J. Org. Chem.* **66**, 6323–6332.

Awards & Distinctions: V K Joag Award, Univ. of Pune 2008 • M S Wadia, Endowment Lecture Award, 2005 • CRSI Bronze Medal 2003.

Dhawan, Satish*

Elected: 1970
Specialization: Aeronautics; Fluid Mechanics
Date and Place of Birth: 25 September 1920; Srinagar, Jammu & Kashmir
Parents: R B Devidayal Dhawan and Lakshmi Khosla
Spouse and Children: Nalini; one *s*, two *d*
Last Address: Department of Space, Antariksh Bhavan, New BEL Road, Bangalore 560 094, India
***Deceased:** 3 January 2002

Education: Punjab Univ.: BA 38, MA 41, BE 44; Univ. of Minnesota: MS 47; California Inst. of Technol., USA: PhD 51.

Career: IISc, Bangalore, Aero Engg. Dept: Sr Sci. Offr 51–52, Asst Prof. 52–55, Prof. & Head 55–62, Dir 63–81; Dept of Space: Secretary and Chmn, Space Commission 72–84, Sr Adviser 84–85, Member 85.

Scientific Work: Conducted early experimental studies of shock/boundary-layer interaction. Made definitive direct measurements of skin friction on a flat plate by a novel balance. Established the first high-speed wind tunnels in India at IISc. Considered the father of experimental fluid dynamics research in India and in many ways the first engineering scientist of the country. Investigated transition from laminar to turbulent flow and the reverse process in several flow configurations. Formulated and led the national space programme from 1972 to 1984. He devised a programme that was societally conscious with objectives that could be widely understood (weather, natural resource-mapping, communications, etc).

Important Publications: **(1)** *Direct measurement of skin friction* (1953) Tech Reg. No 1121. National Advisory Committee for Aeronautics, Washington DC **(2)** *Bird flight* (1991) India Acad. of Sci.

Memberships: Fellow: INSA 78; Royal Aeronautical Soc. • Hon. Fellow: Aeronautical Soc. of India • Foreign Assoc.: US Natl Acad. of Engineering.

Awards & Distinctions: Padma Shri 66 • Cal. Tech. Distinguished Alumnus 69 • Padma Bhushan 71 • DSc (hc) Univ. of Roorkee 72, Cranfield Inst. of Technol. 75, Panjab Univ. 78, IIT, Madras 81, Delhi Univ. 84 • Padma Vibhushan 81 • INSA Aryabhata Medal 83 • G M Modi Award 88.

Dhurandhar, Sanjeev Vishnu

Elected: 2002
Position: Sr. Prof., IUCAA, Pune
Specialization: Gravitational Waves; General Relativity; Theoretical Astrophysics
Date and Place of Birth: 29 November 1951; Mumbai, Maharashtra
Parents: Dhurandhar Vishnu Jaganath and Sumati
Spouse and Children: Medha; one s
Address: Professor, Inter-University Centre for Astronomy & Astrophysics, Ganeshkhind,
Pune 411 007, India
Tel. (020) 2560 4224, (020) 2560 4100 (O), (020) 2569 4234 (R)
email: sanjeev@iucaa.ernet.in

Education: Pune Univ.: BSc 72, MSc 74, Bombay Univ.: PhD 80.

Career: Raman Res. Inst., Bangalore: Postdoc Fellow 79–81; TIFR: Sr Vis. Fellow 81–84; Pune Univ.: Lecturer 84–89; Univ. of Wales, Cardiff: SERC Vis. Fellow 87–88; IUCAA: Asst Prof. 89–94, Assoc. Prof. 94–98, Prof. 88–.

Scientific Work: Main contribution is in the field of gravitational wave data analysis. Built an active group in IUCAA which contributed substantially at the international level. Salient contribution has been in extracting the inspiraling binary signal from detector noise. Introduced flat search, hierarchical search, coherent search with a network of detectors. Also using Groebner basis methods, obtained laser noisefree data combinations which formed the first module of syzygies. Apart from this, worked on the data analysis of gravitational waves from pulsars/rotating neutron stars and the stochastic background.

Important Publications: Significant publications can be found in the journals: *Phys. Rev. D* and *Classical and Quantum Gravity.*

Memberships: Maharashtra Acad. of Sci. 94; NASI 2004.

Awards & Distinctions: V K Joag Award 2000.

Dikshit, Madhu

Elected: 2000
Position: Sci., CDRI, Lucknow
Specialization: Cardiovascular Pharmacology; Molecular Pharmacology; Neutrophils and Nitric Oxide Synthases
Date and Place of Birth: 21 November 1957; Bahraich, Uttar Pradesh
Parents: J L Pande and Maheshwari
Spouse and Children: D K Dikshit; two s (Anurag, Aditya)
Address: Cardiovascular Pharmacology Unit, Central Drug Research Institute,
P. B. 173, Lucknow 226 001, India
Tel. (0522) 261 2411-18/4254 (O), (0522) 237 7609 (R), Mobile: 94151 11766
email: madhudikshit@yahoo.com, madhu_dikshit@cdri.res.in

Education: Allahabad Univ.: BSc 75, MSc 77; Kanpur Univ.: PhD 83.

Career: MLN Medical College, Allahabad: Demonstrator 77–78; CDRI, Lucknow: Jr Res. Fellow 78–81, Postdoc Res. 83–87, Sci. 87–2009.

Scientific Work: Neutrophils (PMNs), indispensable for host defense, act primarily by generation of reactive oxygen species (ROS) and nitrogen species (RNS) to kill invading pathogens. Demonstrated significant alterations in the release of NO from PMNs in sepsis, thrombosis, hypoxia-reoxygenation, and in Parkinson's disease patients. Immunocytochemical, molecular and biochemical studies on PMNs have unravelled unique features of NOS localization, expression of splice variants and regulation of enzymatic NO synthesis. Studies on PMNs have demonstrated role of ascorbic acid in regulation of the enzymatic synthesis of NO by stabilizing tetrahydrobiopterin, providing a convincing explanation as to why PMNs store exceptionally large amounts of ascorbate. Role of ascorbate to support NO synthesis was also confirmed by studies in scorbutic guinea pigs. NO in PMNs influences NADPH-oxidase activity, cytoskeleton proteins, myeloperoxidase release and free radical generation. Recent studies demonstrate NO mediated signalling in PMNs *vis a vis* phosphorylation, nitration and nitrosylation of various signalling proteins, leading to the formation of neutrophil extracellular traps. Role of NO in physiological (regulation of PMNs, platelet, and vasoreactivity) and pathological (hypertension, neurodegeneration, disruption of the blood-brain barrier and ulcers) conditions have been explored. Also actively involved in the New Drug Development Programme of CDRI. Various *in vitro* tests and animal models for anti-thrombotic activity have been established and two new collagen receptor antagonists have been identified for new drug development.

Important Publications: **(1)** Ascorbate sustains neutrophil NOS expression, catalysis and oxidative burst (2008) *Free Radic. Biol. Med.* **45**, 8, 1084. **(2)** Activation of protein kinase b/Akt and endothelial nitric oxide synthase mediates agmatine-induced endothelium-dependent relaxation (2007) *Eur. J. Pharmacol.* **572**, 189–96. **(3)** Nitric oxide synthase localization in the rat neutrophils: Immunocytochemical, molecular and biochemical studies, (2006) *J. Leukocyte Biol.* **79**, 519–28. **(4)** Ascorbate-mediated enhancement of reactive oxygen species generation from polymorphonuclear leukocytes: Modulatory effect of nitric oxide (2004) *J. Leuko. Biol.* **75**, 1070–1078. **(5)** Nitric oxide mediated augmentation of polymorphonuclear free radical generation following hypoxia-reoxygenation (1999) *Blood* **93**, 333–340.

Memberships: Fellow: NASI 2000.

Awards & Distinctions: Young Scientist Award 89 • Achari Prize, Indian Pharmacological Soc., 89 • Shakuntala Amir Chand Prize, ICMR 94 • Uvnas Prize, IPS 95–96 • INSA Visiting Fellowship 96–97 • Prof. K P Bhargava Memorial Medal INSA 99 • National Bioscience Award, DBT 2000 • N S Dhalla Oration, Indian Pharmacological Soc. 2006.

Dileep Kumar, Maripi

Elected: 1999
Position: Sci., NIO, Dona Paula
Specialization: Control of Sea Water Composition; Biogeochemical Cycles; Global Change and Chemical Oceanography
Date and Place of Birth: 10 November 1954; Kaikalur, A.P.
Parents: Rama Rao and Kanakamma
Spouse and Children: Anuradha; two *d*
Address: Chemical Oceanography Division, National Institute of Oceanography
Dona Paula 403 004, India
Tel. (0832) 245 0398 (O), (0832) 244 6657 (R)
email: dileep@nio.org, dileep542003@yahoo.co.in

Education: Andhra Univ.: BSc 75, MSc 78, PhD 88.

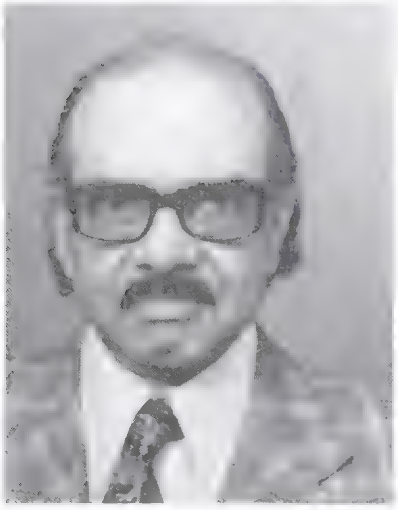
Career: National Inst. of Oceanography: Res. Fellow 79–82, Trainee Sci. 82–83, Sci. 83–.

Scientific Work: Contributions advanced our understanding of carbon and sulphur biogeochemical cycles and significantly brought out the contrasting patterns between the Arabian Sea and the Bay of Bengal.

Important Publications: **(1)** Dynamics of dissolved organic carbon in the northwestern Indian Ocean (1990) *Mar. Chem.* **31**, 299–316. **(2)** A study of the carbon dioxide system in the northern Indian Ocean during premonsoon (1994) *Mar. Chem.* **47**, 243–254. **(3)** Export fluxes of dimethylsulfoniopropionate and its breakdown gases at the air-sea interface (2002) *Geophys. Res. Lett.* **29**, 2. **(4)** Carbon budget in the eastern and central Arabian Sea: An Indian JGOFS synthesis (2003) *Global Biogeochem. Cycles* **17**, 4, 13. **(5)** Variability in abundance and fluxes of dimethyl sulphide in the Indian Ocean (2007) *Biogeochemistry* **83**, 3–5, 277.

Awards & Distinctions: CSIR Young Scientist Award in Earth Sciences 88 • CSIR Raman Research Fellowship 91 • B N Ghosh 80th Birthday Medal and Prize 2002.

Divatia, Ajay Shrinivas*



Elected: 1975
Specialization: Accelerator Physics; Nuclear Physics; Vacuum Physics
Date and Place of Birth: 17 February 1927; Sukkur, Sind
Last Address: Bhabha Atomic Research Centre, Bombay, India
***Deceased:** 7 January 1993

Education: Univ. of Bombay: BSc 48; Univ. of Wisconsin, USA: MS 50, PhD 55.

Career: BARC, Bombay: Jr Sci. Offr 56–62, Head of Van de Graff Sec. 62–65, 72–73, Head of Charged Particle Reaction Sec. 65–72, Project Manager and Project Dir of Variable Energy Cyclotron Project 73–87, Dir of VEC Centre 83–87, INSA Sr Sci. 87–93.

Scientific Work: Involved with accelerator development and accelerator physics. Involved in the preparation and successful execution of the project of constructing the variable energy cyclotron and organizing the research programme of the accelerator. Entrusted with the responsibility of installing and commissioning the 5.5 MeV Van de Graff accelerator and started a research programme using charged particle beams. Primarily responsible for the helium recovery project from hot springs at Bakreswar near Shantiniketan.

Memberships: Member: Intl Nuclear Data Committee of IAEA; American Physical Soc. • Fellow: INSA 83.

Dixit, Kamalakar Ramachandra*

Elected: 1939
Specialization: Nuclear Physics; Solid State Physics
Date and Place of Birth: 6 October 1909; Nasik, Maharashtra
Spouse: Kusum
Last Address: 69, Marine Drive, Bombay 400 020, India
***Deceased:** December 1977

Education: Univ. of London: PhD, Dr Hab (Leipzig).

Career: Gujarat College, Ahmedabad, Dept of Physics: Prof., Principal; Royal Inst. of Sci., Bombay, Dept of Physics: Prof.

Scientific Work: Arrangement of atoms in thin films is known as Dixit's law. First to introduce the idea of doping for copper oxide rectifiers and to find experimentally the conditions under which iron appears in a nonmagnetic form. Showed that positrons could annihilate themselves by producing two or three quanta.

Memberships: Fellow: INSA 54.

Doraiswamy, Lakshmangudi Krishnamurthy

Elected: 1974
Position: Anson Marston Distinguished Prof. Emeritus, Iowa State Univ.
Specialization: Chemical Reaction Engineering; Fluidization; Organic Synthesis Engineering
Date and Place of Birth: 13 May 1927; Bangalore, Karnataka
Parents: L S Krishnamurthi
Children: one *s*, one *d*
Address: Department of Chemical Engineering,
Iowa State University, 1031, Sweeney Hall, Ames, Iowa 50011-2230, USA
Tel. (+1-515) 294 4117 (O), (+1-515) 292 9186 (R)
email: dorai@iastate.edu

Education: Madras Univ.: BSc 46; Univ. of Wisconsin: MS 50, PhD 52.

Career: National Chemical Lab., Pune: Sci. 60–78, Dir. 78–89; Iowa State Univ., Dept of Chemical Engineering: Glenn Murphy Prof. of Engineering 89–92; Dept of Chemical Engineering: Herbert Stiles Prof. 92–, Anson Marston Distinguished Prof. 96–.

Scientific Work: Acknowledged as one of the founding fathers of modern chemical engineering in India and a leader worldwide. Work in theoretical and experimental catalytic reaction engineering, gas-solid non-catalytic reactions, phase-transfer catalysis, and sonochemical reaction engineering helped to establish organic synthesis engineering as a modern discipline. Developed widely accepted models for the analysis of gas-solid catalytic and noncatalytic reactions. Used modern stochastic methods in reactor analysis. Developed methods, recommended to this day, for estimating thermodynamic properties.

Memberships: Fellow: INSA 77; NASI 88.

Awards & Distinctions: K G Naik Gold Medal 70 • Hari Om Ashram Trust-UGC Homi Bhabha Medal 77 • Indian Inst. of Chemical Engineers Herdilla Prize 78 • FICCI Award 79 • Jawaharlal Nehru Award 87 • Padma Bhushan 90 • Om Prakash Bhasin Award 86 • American Inst. of Chemical Engineers, Richard H Wilhelm Award 90.

Dorasami, L S*

Elected: 1947
Specialization: Plant Breeding
Last Address: 6 North Public Square Road, Basavangudi, Bangalore 560 004, India
***Deceased:**

Education: Univ. of London: BSc, PhD.

Career: Dept of Agriculture, Bangalore: Economic Botanist.

Scientific Work: Work involved breeding cotton, cereals, pulses and millets. Involved in sugarcane breeding.

Doss, Kadarundalige Sitarama Gururaja*

Elected: 1935
Specialization: Electrochemistry; Sugar Technology
Date and Place of Birth: 10 August 1906; Nagamangala, Mysore
Parents: Sitarama Doss and Sita Bai
Spouse and Children: K G Sita Bai; six *s*, three *d*
Last Address: 8, Balaram Road, Adyar, Madras 600 020, India
***Deceased:** 18 October 1989

Education: Mysore Univ.: BSc 27, MSc 33; Univ. of Madras: DSc 39.

Career: Central College, Bangalore: Lecturer and Asst Prof. 27–43; Natl Sugar Inst., Kanpur: Prof. 43–57; Central Electrochemical Res. Inst., Karaikudi: Dy Dir 57–58, Dir 58–67, CSIR Emer. Sci. 69–72; India Cements Ltd: Tech. Adviser 67–69.

Scientific Work: Early research spanned a wide area from adsorption films, wetting phenomena, techniques for measurement of fast reactions and trace concentrations. By application of the Langmuir–Adam trough, showed that what was termed by Adam as the 'mysterious variation of surface tension with time' was due to the existence of an energy barrier at the interface. Also calculated the rate of formation of such films and provided a method of determining the cross-section of such solute molecules. Pioneering researches in ac effects on adsorption and electrode kinetics. During this period, discovered the techniques of tensammetry and the redoxokinetic effect, now termed Faradaic rectification. The latter opened up a very interesting field of study connected with polarography and fast reaction kinetics.

Memberships: Fellow: INSA 57; Royal Soc. of Chem. London; London Institute of Physics.

Awards & Distinctions: Vasvik Award 79 • Noel Derr Gold Medal 83.

Dua-Sharma, Sushil

Elected: 1974
Specialization: Neurophysiology; Reproductive Biology; Nutrition
Date and Place of Birth: 4 April 1926; Bannu
Spouse: K N Sharma
Address: G-195, Ramaprastha Colony, Chander Nagar Post, Ghaziabad 201 011, India
Tel. (0120) 262 8318, (0120) 262 3318 (R)

Education: Univ. of Delhi: MBBS 50; AIIMS, New Delhi: MD 59; Univ. of Punjab: PhD 60.

Career: Lady Hardinge Medical College, New Delhi: Instructor in Physiology 52–54, Asst to the Prof. of Physiology 54–56; AIIMS, New Delhi: Neurophysiology Res. Unit: Res. Offr 56–61, Asst Prof. of Physiology 61–62; NIH, USA: Sr Vis. Sci. 60–61, Res. Assoc. 63–65; St. John's Medical College, Bangalore, Dept of Physiology: Assoc. Prof. 65–76, Prof.-in-Charge 76–79; JNU, New Delhi, School of Life Sci.: Prof. of Neurobiology 79–81; Al-Arab Medical Univ., Libya, Dept of Physiology: Prof. 86–90; M S Ramaiah Medical College, Bangalore: Prof. & Head of Physiology and Principal 81–86, 90.

Scientific Work: Leading physiologist who worked on nervous (hypothalmic-limbic) control of feeding, hunger and malnutrition. Monumental work on the canine brain in stereotoxic co-ordinates is widely quoted.

Important Publications: *The canine brain in stereotaxic coordiantes*, (1971) HIT Press.

Memberships: Fellow: Natl Acad. of Medical Sci. • Member: Indian Sc. Congress Assn; Indian Acad. of Medical Sci; USA Psychophysiology Res. Assn; Neurosciences Soc. of India; Indian Soc. of Pain Res. and Therapy.

Awards & Distinctions: ICMR Award • Shakuntala Amir Chand Prize 59 • ICMR Amrut Mody Res. Award for Basic Medical Sci. 75.

Dube, Ganesh Prasad*

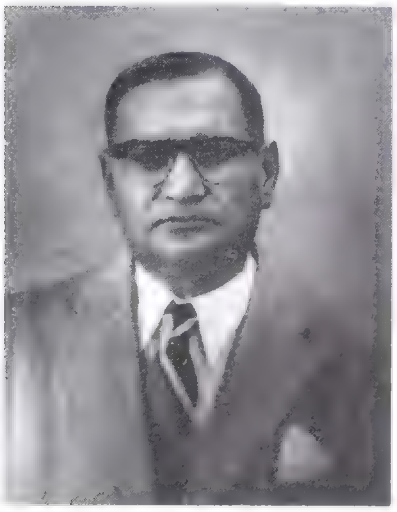
Elected: 1950
Specialization: Stability of Colloidal Solutions; Adsorption of Gases; Theory of Metals
Date of Birth: 1 May 1914
Parents: Suraj Prasad Dube and Rajpati Devi
Spouse and Children: Ram Singari Devi; four *s*, four *d*
Last Address: Department of Physics, Patna University, Krishna ghat, Patna, India
***Deceased:** 17 January 1973

Education: Univ. of Allahabad: BSc 33, MSc 35; Univ. of Cambridge: MSc 39.

Career: Balwant Rajput College, Agra: Lecturer 35–36; Science College, Patna: Prof. 41–54; Ranchi College: Principal 60–61; Bihar: Addl Dir of Public Instruction 61–65, Dir 72; State Inst. of Sci. Education: Dir 66–68; State Inst. of Education: Dir 69–72; Patna Univ.: Head, Dept of Phys. 72–73.

Memberships: Fellow: Indian Physical Soc.

Dutt, Nand Lall*



Elected: 1935
Specialization: Cytology of Sugarcane
Date and Place of Birth: 1900; Miani, Dist Shahpur, West Pakistan
Children: two *s*, one *d*
Last Address: Sugarcane Breeding Institute, Lawley Road P O., Coimbatore, India
***Deceased:** 6 February 1960

Education: Univ. of Punjab: BSc (Hons), MSc.

Career: Imperial Sugarcane Station, Coimbatore: Second Cane Breeding Offr 26–42, Govt Sugarcane Expert, Dir 42–48

Scientific Work: Evolved several varieties of sugarcane and conducted research in the allied fundamental aspects such as cytogenetics, embryology, floral morphology and taxonomy, seed setting and germination, pollen fertility, and preservation. Work resulted in many improved varieties contributing to the stability of sugarcane industry in India. Started photoperiodic experiments, for synchronizing flowering in varieties to be crossed and an exhaustive collection of spontaneums in various countries. Established the 'Germ Plasm Bank'.

Dutt, Sikhibhushan*

Elected: 1939
Specialization: Organic Chemistry
Date of Birth: 13 December 1898
Last Address: University of Delhi, India
***Deceased:** 17 December 1992

Education: Univ. of Calcutta: MA, PRS; Univ. of London: DSc 26.

Career: Allahabad Univ., Dept of Chemistry: Reader and Prof. 26–49; Univ. of Delhi, Dept of Chemistry: Prof. 49–.

Scientific Work: Valuable work in four areas: colour on the basis of molecular strain of organic compounds; synthetic dyestuffs; chemistry of plant products, with special references to Indian medicinal plants, essential oils; and chemistry in the detection of crime in India.

Memberships: Fellow: INSA 35; Member: Chem. Soc. London; Indian Chemical Soc.

Awards & Distinctions: Univ. of Calcutta Mouat Medal 23 • UP Education Minister's Gold Medal • Smith's Prize of Univ. of London

Dutta, Phanindra Chandra*

Elected: 1975
Specialization: Organic Chemistry of Natural Products
Date and Place of Birth: 11 March 1912; Agartala, Tripura
Parents: Naba Chandra Dutta and Rajalakshmi
Spouse and Children: Chhabi Sengupta; one s
Last Address: 799, Block P, New Alipore, Calcutta 700 053, India
***Deceased:** 13 June 1983

Education: Cotton College, Gauhati: BSc 33; Calcutta Univ.: MSc 35, DSc 39, PRS 45.

Career: Calcutta Univ.: Lecturer 41–45; Imperial Chemical Industries: Fellow 45–47; Univ. of Zurich and ETH, Switzerland: Fellow 47–49; Harvard Univ., USA: Postdoc Fellow 49–53; Indian Assn for the Cultivation of Sci., Calcutta, Dept of Chemistry: Reader, Head and Prof. 53–77.

Scientific Work: Research related to synthesis of the complex structural framework of terpenoid natural products and established an internationally reputed school in synthetic organic chemistry. Introduced in this country the concept of stereocontrol for synthesis of multi-asymmetric centred polycyclic compounds, close on the heels of its development at Harvard. Successfully applied this concept for the synthesis of resin acids, deterpenes of complex structures and sesquiterpenes.

Memberships: Fellow: INSA 71.

Dutta Roy, Suhash Chandra

Elected: 1988
Position: INSA Hon. Sci., IIT New Delhi
Specialization: Signal Processing; Network Theory; Electronic Circuits
Date and Place of Birth: 1 November 1937; Mymensingh, Bangladesh
Parents: Suresh Chandra Dutta Roy and Suruchi Bala
Spouse and Children: Sudipta; one *s*, one *d* (Sumantra and Shoubhik)
Address: Department of Electrical Engineering, Indian Institute of Technology, New Delhi 110 016, India
Tel. (011) 2659 1080 (O), (011) 2656 1619 (R), Mobile: 98714 70136
email: scdroy@ee.iitd.ac.in, s.c.dutta.roy@gmail.com

Education: Calcutta Univ.: BSc Hons 56, MSc 59, DPhil 65.

Career: River Res. Inst., W Bengal: Res. Offr 60–61; Kalyani Univ. 61–65; Univ. of Minnesota, USA: Asst Prof. 65–68; IIT New Delhi: Assoc. Prof. 68–69, Prof. 70–98, Dean of Undergraduate Studies 83–86, Emeritus Fellow 98–2004, INSA Sr Sci. 2004–07, INSA Hon. Sci. 2007–, Head of Dept 70–73; Univ. of Leeds, UK: Vis. Prof. 73–74; Iowa State Univ., USA: Vis. Fellow 78–79.

Scientific Work: Filtering and signal processing using digital and analog techniques. New methods for design of digital signal processor with reduced computational complexity and quantization errors; active filter design and inductance simulation; analysis, generalization, characterization and applications of non-uniform transmission lines; broadband matching with transmission lines; and compensation of charge transfer inefficiency in charge coupled devices.

Important Publications: **(1)** Design of digital FIR notch filters (1994) *IEE Proc. – Vis. Image Signal Process.* **141**, 334–338. **(2)** Design of IIR multiple notch filters based on all-pass filters (1999) *IEEE Trans. Circuits and Systems* II, **46**, 134–138. **(3)** Compact analogue neural network: A new paradigm for neural based combinatorial optimisation (1999) *IEE Proc. – Circuits, Devices and Systems* **146**, 111–116. **(4)** A simple derivation of the spectral transformations for IIR filters (2005) *IEEE Trans. Education* **48**, 274–278. **(5)** On the design of the triple resonance interstage network (2008) *IEEE Trans. Circuits and Systems* **55**, 863–865.

Memberships: Fellow: INSA 83; NASI 90; INAE; Systems Soc. of India • Distinguished Fellow: IETE.; Acoustical Soc. of India.

Awards & Distinctions: Meghnad Saha Memorial Award 73, 90 • Ramlal Wadhwa Gold Medal 80 • S S Bhatnagar Prize 81 • Vikram Sarabhai Res. Award 81 • Om Prakash Bhasin Award 87 • Systems Soc. Award 89 • Pandit Jawaharlal Nehru Award 92 • Syed Hussain Zaheer Medal 92.

Easwaran, Kalpathy Ramaier Katchap

Elected: 1986
Position: Emeritus Prof., IISc, Bangalore
Specialization: Structural Biology; Membrane Biophysics; Molecular Biophysics
Date and Place of Birth: 7 July 1939; Palghat, Kerala
Parents: K V Rama Iyer and Meenakshi
Spouse and Children: Lalitha; two *d*
Address: Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080)2341 5221 (R), Mobile: 90030 36231
email: krke@mbu.iisc.ernet.in, krk_easwaran@yahoo.com

Education: Madras Univ.: BSc 58; Inst. of Sc., Bombay: MSc 61; IISc, Bangalore: PhD 67.

Career: Univ. of Washington, USA: Lecturer and Sr Res. Assoc. 69–70; Harvard Medical School, USA: Vis. Assoc. Prof. 76–77 & 85–87; IISc, Molecular Biophysics Unit, Bangalore: Sr Res. Fellow 71–73, Asst Prof. 73–80, Assoc. Prof. and Prof. 80–, Chmn 92; Naval Res. Lab., Washington, DC, USA: Vis. Sci. & Consultant 90–92.

Scientific Work: Contributed greatly to our understanding of the molecular mechanism of transmembrane ion transport across model and biological membranes mediated by carrier and channel ionophores using a variety of physico-chemical and spectroscopic techniques. Studies on calcium ionophore A23187, showed for the first time that the transmembrane calcium transport by this ionophore is by channel/pore mechanism. Studies on polyene antibiotics, Amphotericin B and Filipin have shed light on the mechanism of their action at molecular level.

Memberships: Member: American Biophysical Soc.; Intl Soc. for Magnetic Resonance; American Biophysical Soc. • Fellow: INSA 89.

Awards & Distinctions: S S Bhatnagar Prize 84 • Ranbaxy Award 93.

Ekambaram, T*

Elected: 1934
Last Address: Presidency College, Madras, India
***Deceased**

Education: MA, PhD.

Career: Presidency College, Madras, Botany Dept: Prof.

Forbes, S G*

Elected: 1937
Last Address: Government of Mysore, Bangalore, India
***Deceased**

Education: BSc, EE.

Career: Govt of Mysore, Bangalore: Chief Electrical Engineer.

Memberships: Member: AIEE, E&ME.

Forster, R B*

Elected: 1934
Last Address: Royal Institute of Science, Bombay, India
***Deceased**

Education: ARCScI, PhD, DSc, FIC.

Career: Royal Inst of Sci., Bombay, Dept of Chemical Technol.: Prof.

Gadagkar, Raghavendra

Elected: 1990
Position: Prof., IISc, Bangalore
Specialization: Animal Behaviour; Ecology; Evolution
Date and Place of Birth: 28 June 1953; Kanpur, Uttar Pradesh
Parents: R K Gadagkar and Shanta Devi
Spouse and Children: Vijayageetha; one *s* (Vikram)
Address: Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 1429, (080) 2293 2340 (O), (080) 2360 1758 (R)
email: ragh@ces.iisc.ernet.in; URL: http://ces.iisc.ernet.in/hpg/ragh

Education: Bangalore Univ.: BSc 72, MSc 74; IISc, Bangalore: PhD 79.

Career: IISc, Bangalore, Centre for Theoretical Studies: Res. Offr 79–80, Res. Assoc. 80–83, Sr Res. Fellow 83–84, Centre for Ecological Sci.: Lecturer 84–87, Asst Prof. 87–91, Assoc. Prof. 91–97, Chmn 92–2002, Prof. 97–, Centre for Contemporary Studies, Chmn 2004–; JNCASR Bangalore: Hon. Sr Fellow 93–98, Hon. Prof. 98–2009; IISER, Kolkata: Adjunct Prof. 2007–.

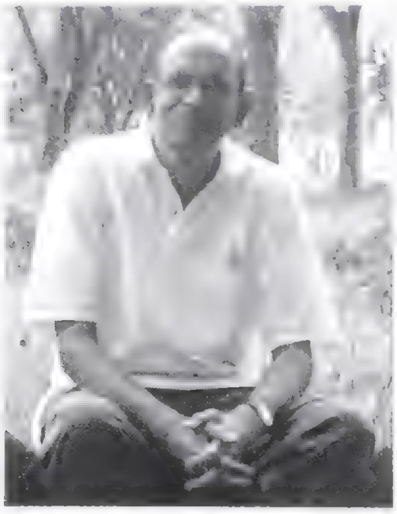
Scientific Work: Established an active research programme in insect sociobiology. Using the locally available Indian species of primitively eusocial wasp *Ropalidia marginata*, pursued empirical and theoretical, field and laboratory work for over 25 years. This work has made this Indian species of social wasps one of the best studied species anywhere in the world and contributed significantly to our understanding of insect societies and has considerably altered our view of the forces that mould the evolution of social life in animals. As the Founder Chair of the Centre for Contemporary Studies at IISc, Bangalore, initiated a new pedagogical experiment that engages some of the best practitioners of different disciplines in the human sciences, such as philosophy, sociology, economics, law, literature, poetry, art, music, cinema etc. and aims to forge meaningful interaction between the natural and human sciences.

Important Publications: **(1)** *Survival strategies – cooperation and conflict in animal societies* (1997) Harvard University Press, Cambridge. **(2)** *The social biology of Ropalidia marginata: Toward understanding the evolution of eusociality* (2001) Harvard University Press, Cambridge. **(3)** Demographic predisposition to the evolution of eusociality: A hierarchy of models (1991) *Proc. Natl. Acad. Sci. USA* **88**, 10993–10997. **(4)** We know that the wasps know: Cryptic successors to the queen in *Ropalidia marginata* (2008) *Biol. Lett.* **4**, 634–637. **(5)** Interrogating an insect society (2009) *Proc. Natl. Acad. Sci. USA* **106**, 10407–10414.

Memberships: Fellow: INSA 93; NASI 95; TWAS 2000; FIAE • Foreign Assoc.: US Natl Acad. Sci. • Member: Animal Behaviour Soc.; Bombay Natural History Soc.; Smithsonian Institution • Entomological Soc. of America; Intl Soc. of Hymenopterists; Centre for Science and Environment; Assn for Tropical Biology; Intl Soc. of Behavioural Ecology; American Soc. of Naturalists; Natl Inst. of Ecology; American Assn for the Advancement of Science • Assoc. Member: Natl Institute of Advanced Studies.

Awards & Distinctions: IASc Assoc. 83–85; A Krishnamurthy Award 82• Young Scientist Award 84 • Saraswathi Narayanan Award 90–91 • T N Ananthakrishnan Award 90–91 • B M Birla Sc. Prize 91 • Homi Bhabha Fellowships 92–94 • S S Bhatnagar Award 93 • B P Pal National Environment Fellowship • Third World Acad. of Sci. Award • Wissenschaftskolleg (Institute for Advanced Study) zu Berlin, Germany: Schering Fellow • Guest of the Rektor, Distinguished Visiting Scholar, Univ. Pretoria, South Africa • Swami Pranavananda Saraswathi Award • VASVIK Award • Rustum Choksi Award • U S Srivastava Memorial Lecture Award, NAS • J C Bose National Fellowship • Jawaharlal Nehru Birth Centenary Visiting Fellowship • H K Firodia Award 2008.

Gadgil, Madhav Dhananjaya



Elected: 1979
Position: Prof., ARI, Pune
Specialization: Ecology; Environmental Management and Traditional Knowledge Systems; Ecological History
Date and Place of Birth: 24 May 1942; Pune, Maharashtra
Parents: Dhananjaya R Gadgil and Pramilabai
Spouse and Children: Sulochana; one *s*, one *d* (Siddhartha, Gauri)
Address: Agharkar Research Institute, Agarkar Road, Pune 411 004, India
Tel. (020) 2565 2970, 2565 3680/211 (O), (020) 2589 3424 (R), Mobile: 98811 53413
email: madhav.gadgil@gmail.com

Education: Poona Univ.: BSc 63; Bombay Univ.: MSc 65; Harvard Univ., USA: PhD 69.

Career: Harvard Univ., USA: Postdoc Res. 69; Lecturer 69–71; Maharashtra Assn for Cultivation of Sc., Pune: Sci. Offr 71–73; IISc, Bangalore, Centre for Theoretical Studies: Asst Prof. 73–75, Assoc. Prof. 75–78, Prof. 78–81; Centre for Ecological Sci.: Prof. 82–2005; Hon. Prof. 2005–08; JNCASR, Bangalore, Biodiversity Unit: Hon. Prof. and Chmn; Agharkar Res Inst. Pune 2008.

Scientific Work: Pioneered models of tradeoffs and mixed strategies in evolution of life histories. Played a leading role in exploring conditions under which humans exhibit ecological prudence, in documenting the ecological organization of the Indian society and in tracing the ecological history of the Indian subcontinent.

Important Publications: **(1)** Life historical consequences of natural selection (1970) *Am. Nat.* **104**, 1–24. **(2)** Sacred groves of Western Ghats of India (1976) *Econ. Bot.* **30**, 152–160. **(3)** Indigenous knowledge for biodiversity conservation (1993) *Ambio* **XXII,** 2–3, 151–156. **(4)** *The use and abuse of nature* (2001) Oxford University Press, New Delhi, 274 + 213. **(5)** New meanings for old knowledge: the people's biodiversity registers programme (2000) *Ecol. Appl.* **10,** 5, 1307–1317.

Memberships: Fellow: INSA 84; NASI 90; TWAS 91; US Natl Acad. Sci.; Natl Inst. of Ecology; American Soc. of Naturalists • Member: Science Advisory Council to the PM; Board of Directors 2nd International Congress of Systematic and Evolutionary Biology; Environmental Planning Commission • President: Marathi Vigyan Parishat • Chair: Science and Technology Advisory Panel; Global Environment Facility.

Awards & Distinctions: Natl Environmental Fellow 79–81 • Padma Shri 81 • Karnataka Rajyotsava Award 83 • SS Bhatnagar Prize 86 • Hari Om Ashram Trust Award 89 • Vikram Sarabhai Award 90 • Pew Scholars Program Award in Conservation and the Environment, USA. • Harvard University GSAS Centennial Medal 2002 • Volvo Environment Prize 2003 • Padma Bhushan 2006.

Gadgil, Sulochana

Elected: 1985
Position: Prof., IISc, Bangalore
Specialization: Meteorology; Oceanography; Evolutionary Biology
Date and Place of Birth: 7 June 1944; Pune, Maharashtra
Parents: Y V Phatak and Indumati
Spouse and Children: Madhav Dhananjaya Gadgil; one *s*, one *d* (Siddhartha, Gauri)
Address: Centre for Atmospheric and Oceanic Sciences, Indian Institute of Science,
Bangalore 560 012, India
Tel. (080) 2360 0450, 2293 3069 (O), (080) 6571 2072 (R)
email: sulo@caos.iisc.ernet.in

Education: Poona Univ.: BSc 63, MSc 65; Harvard Univ., USA: PhD 70.

Career: Mass Inst. of Technol., USA, Dept of Meteorology: Res. Assoc. 70–71; Indian Inst. of Tropical Meteorology, Poona: Pool Offr 71–73; IISc, Bangalore, Centre for Theoretical Studies: Asst Prof. 73–81, Assoc. Prof. 81–86, IISc, Ctr for Atmospheric Sci.: Prof. 86–2006, Chmn 89–96, Hon. Prof. 2006–.

Scientific Work: Discovered an important feature of subseasonal variation of the monsoon viz. the northward propagation of the cloud band/rainbelt with a period of 30–50 days throughout the summer monsoon season. With the help of models, unravelled the mechanism underlying this phenomenon. For the first time, elucidated the highly non-linear relationship between tropical cloud systems over the Indian seas and the sea surface temperature (SST) showing the presence of a threshold SST below which convection is suppressed – a result which has been found to be true for all tropical oceans after this study. Investigated space-time variation of the variability using clustering and classification techniques specifically developed for the purpose. Worked on the link between climate and agriculture and determined the minimum skill of meteorological forecasts for specific agricultural applications. Developed models of phenomena in evolutionary biology including a theoretical model of interacting populations.

Important Publications: **(1)** On the maximum cloud zone and ITCZ over the Indian longitudes during the southwest monsoon (1980) *Mon. Weather Rev.* **108**, 1122–1135. **(2)** Ocean-atmosphere coupling over monsoonal regions (1984) *Nature* **312**, 141–143. **(3)** Use of climate information for farm-level decision making: Rainfed groundnut in Southern India (2002) *Agric. Syst.* **74**, 431–457. **(4)** The Indian monsoon and its variability (2003) *Annu. Rev. Earth. Planet. Sci.* **31**, 429–467. **(5)** Extremes of the Indian summer monsoon rainfall, ENSO and equatorial Indian ocean oscillation (2004) *Geophys. Res. Lett.* **31**, L12213. **(6)** The Indian Monsoon (2006) *GDP and Agriculture, Economic and Political Weekly,* **XLI**, 4887–4895.

Memberships: Fellow: INSA 95; Indian Meteor. Soc.

Awards & Distinctions: UGC Career Award 80–83 • B N Desai Award 82 • Vasvik Award 88 • Vikram Sarabhai Award 89 • Natl Award for lifetime achievement in atmospheric science and technology 2008.

Gadre, Shridhar Ramchandra

Elected: 1991
Position: Prof, Univ. of Pune
Specialization: Quantum Chemistry; Computer Applications
Date and Place of Birth: 20 May 1950; Akola, Maharashtra
Parents: Ramachandra and Kamal
Spouse and Children: Meena; three *d*
Address: Department of Chemistry, University of Pune, Pune 411 007, India
Tel. (020) 2569 1728, (020) 2560 1398 (O), (020) 2421 4664 (R), Mobile: 99606 24664
email: gadre@chem.unipune.ernet.in

Education: Univ. of Poona: BSc 70, MSc 72; IIT, Kanpur: PhD 78.

Career: Univ. of N. Carolina, USA: Postdoc 79–80; Univ. of Pune: Lecturer 80–85, Reader 85–88, UGC Res. Sci. 88–89, Prof. 89–.

Scientific Work: Worked on interconnections between the position and momentum space electron densities as well as formulation of a novel maximum entropy principle which is well recognized. Used rigorous bounds and parallel computing techniques to the study of molecular electronic structure and properties. Studied topography of molecular electron momentum density and electrostatic potential which have proved valuable. Developed methods for *ab initio* treatment of large molecules.

Important Publications: **(1)** *Electrostatics of atoms and molecules* (2000) Universities Press, Hyderabad. **(2)** Some novel characteristics of atomic information entropies (1985) *Phys. Rev.* **A32**, 2602–2606. **(3)** Maximization of atomic information entropy sum in configuration and momentum spaces (1985) *Int. J. Quantum Chem.* **28**, 311. **(4)** Maximal and minimal properties of molecular electrostatic potentials (1990) *J. Chem. Phys.* **93**, 1770. **(5)** Molecular tailoring approach for geometry optimization of large molecules: Energy evaluation and parallization strategies (2006) *J. Chem. Phys.* **125**, 104109.

Memberships: Fellow: INSA 96; Maharashtra Acad. of Sci. • Member: American Chemical Soc.

Awards & Distinctions: IASc Assoc. 83–86 • Young Scientist Award 82 • INSA Res. Fellow 88–91 • S S Bhatnagar Prize 93 • J C Bose Fellow 2006.

Gaitonde, Bhikaji Balwant

Elected: 1974
Specialization: Communicable Diseases; Clinical Pharmacology; Indigenous Drugs
Date and Place of Birth: 29 December 1926; Banda, Sindhudurg, Maharashtra
Parents: Balwant Sadashiv Gaitonde and Annapurna
Spouse and Children: Nirmala; two *s*, one *d*
Address: Banda District, Sindhudurg 416 511, India
Tel. (02363) 27 0272 (R)
email: bbgaitonde@yahoo.com

Education: Bombay Univ.: MBBS 50, BSc 54, MSc 55, MD 57.

Career: G S Med. College, Bombay: Lecturer 53–56; Topiwala Natl Med. College, Bombay: Asst Prof. 56; Grant Med. College, Bombay: Asst Prof. 56–59; Dir, Medical College, Baroda: Clin. Pharmacology Unit 68–72; Med. College, Nagpur: Prof. 59; Ayurveda Res. Unit, Baroda: Prof. 59–60, Asst Prof. 60, Prof 61–71; Bombay Univ., Faculty of Medicine: Dean 66; Haffkine Inst., Bombay: Dir 72–76; Hindustan Antibiotics: Chmn, Board of Directors 73–76; Med. Education & Res., Maharashtra State: Dir 78; WHO: Adviser 79–82, Sr Adviser 82–88; Goa Med. College, Panaji, Clinical Pharmacology: Vis. Prof. 90–92.

Scientific Work: Reported on the biochemical changes and their mechanism following administration of histamine liberators. Studied nature and mechanism of toxicity of *Digitalis* glycosides. Investigated several medicinal plants, isolated active principles and studied their mechanism of actions. Worked on mechanism of envenomation by venomous snakes; fractionated venoms, and reported on venom toxidation and possibility of their clinical use for active immunization. Studied clinically new chemical entitles for anthelminthic activities.

Memberships: Fellow: NAMS; Maharashtra Acad. of Sci.: • Chairman: Sub-committee on Pesticides, Ministry of Agriculture, Govt of India.

Awards & Distinctions: B C Roy Award.

Ganapathi, Krishnamurthy*

Elected: 1951
Specialization: Microbial Biochemistry; Fermentation Technology; Chemotherapy
Date and Place of Birth: 18 August 1911; Tiruvarur, Tamil Nadu
Parents: S Krishnamurthy Iyer and Rajalakshmi
Spouse and Children: Jampakalakshmi; one *s*, three *d*
Last Address: c/o Dr L Sankaran, 5809, Ipswick Road, Bethesda, Maryland 20814, USA
***Deceased:** 15 October 2004

Education: Univ. of Madras: BA 31; Annamalai Univ.: MSc 34; Madras Univ.: DSc 41.

Career: Annamalai Univ: 32–34; IISc Bangalore: Res. Scholar 34–37; Lady Tata Scholar 37–39; Haffkine Inst. Bombay: Lady Tata Memorial Scholar 39–40, Asst Dir 59–64, Sr Chemist 40; Hindustan Antibiotics, Pimpri: Res. Superintendent 53–58, Works Manager 58–59; Regional Res. Laboratory, Jammu: Dir 54–71; CIPLA and Kothari Plantation Industries, Mumbai: Consultant 72–77.

Scientific Work: Established projection (conformational formula), for the first time, of 3-dihydroxydecalins. Contributed to chemistry of the thiazoles, synthesis and testing of derivatives of sulphanilamide, and independent discovery of sulphathiazole, sulphaguanidine and sulphamethazine; process for the manufacture of sulphathiazole, synthesis of potential antimalarials, and production of paludrine. Contributions concern the biosynthetic pathway for penicillin production by the mould, and biochemistry of *Penicillium chrysogenum,* and some pathogenic bacteria. Produced diosgenin, citric acid by submerged fermentation of *Aspergillus niger.*

Memberships: Fellow: NASI; INSA 46; London Chemical Soc. 46–58; Soc. of General Microbiology 53–70.

Awards & Distinctions: IISc Sudborough Medal 35.

Ganapati, Ponani Narayana*

Elected: 1955
Specialization: Parasitology; Marine Biology
Date and Place of Birth: 15 July 1910; Manjeri, Kerala
Parents: P G Narayana Iyer and Anantalakshmi
Spouse and Children: Sita; two *s*, two *d*
Last Address: Andhra University, Waltair 530 003, India
***Deceased:** 5 January 1984

Education: Presidency College, Madras: BA 31, MA 34; Univ. Madras: PhD 38, DSc 42.

Career: Presidency College, Madras: Demonstrator in Zoology 34; Madras Christian College, Madras: Lecturer in Zoology 39–41; Defence Services, Govt of India: Malaria Offr 42–45; Molteno Inst. of Biology and Parasitology, Univ. of Cambridge: Postdoc. Fellow 47–49; Central Marine Fisheries Station: Asst Res. Offr 49; Andhra Univ., Waltair: Reader and Head of Zoology Dept 49–53, Prof. and Head of Zoology Dept 54–70; Emeritus Prof. 70–84.

Scientific Work: First to describe the life histories of several new sporozoans causing disease to the food fishes of India. Studies on the hydrobiology of the Godavari estuarine systems have contributed much to the understanding of the fauna of the estuary with special reference to fish production. Pioneer in the productivity studies of marine waters in India as well as the biological studies of marine borers and foulers which play a vital part in marine biodeterioration. Also initiated, for the first time, studies on the physiology of marine animals in India with special reference to barnacles, molluscs and crustaceans. Guided pioneering work on the systematics and ecology of littoral fauna carried out at Visakhapatnam and Kakinada. The investigations covering different groups established the existence of a rich and varied littoral fauna in the region.

Memberships: Fellow: INSA 61; President: Zoological Soc. of India.

Awards & Distinctions: Tata Memorial Gold Medal • Sealy Memorial Prize • Maharaja of Travancore Curzon Prize.

Ganatra, Ramanik Dhirajlal*

Elected: 1975
Specialization: Nuclear Medicine
Date and Place of Birth: 14 October 1928; Amreli, Gujarat
Spouse and Children: Panna, one *d*
Last Address: 604 Kamala Apartments, 8-A Dhobi Galli, Versova Road, Andheri, Bombay 400 058, India
***Deceased:** 2 April 1999

Education: Univ. of Bombay: MBBS 52, FCPS 57, MSc 59.

Career: BARC, Bombay, Med. Dn: Sci. Offr 56–68, Radiation Medicine Centre: Offr-in-Charge 68–72, Head 72–84; WHO Fellow for Training in Nuclear Medicine in USA 60–62; International Atomic Energy Agency, Nuclear Medicine Sec., Dn of Life Sci.: Head 84–90, Expert for Nuclear Medicine Sec. 90–91.

Scientific Work: Established, in 1955, the effectiveness of diethylcarbamazine in tropical Eosinophilia. Responsible for introducing several diagnostic radioisotopic tracer tests in India. Notable among them are scintigraphy, radiopharmacy, absorption studies, tumour scanning, radioimmunoassay of communicable diseases, lung aerosol imaging, radiometry for diagnosis of infection and drug sensitivity of microorganisms. Established a novel double tracer technique for vitamin B_{12} absorption. Worked on tumour localizing property of Synkavit, a vitamin K analogue.

Memberships: Member: Intl Council of Radiation Protection 80–84.

Awards & Distinctions: B C Roy National Award 80 • Mazumdar Memorial Oration 86.

Gandhi, Kandukuri Sivananda

Elected: 1990
Position: Hon. Prof., IISc, Bangalore
Specialization: Sonochemical Engineering; Multiphase Fluid Systems; Polymer Reaction Engineering
Date and Place of Birth: 23 December 1942; Vijayawada, Andhra Pradesh
Parents: Kandukuri Virabhadra Rao and Bhramaramba
Address: Department of Chemical Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2320 (O)
email: gandhi@chemeng.iisc.ernet.in; URL: http://chemeng.iisc.ernet.in/gandhi/home.html

Education: Andhra Univ.: BTech Hon. 62; Ohio State Univ., USA: MS 65; Univ. of California, USA: PhD 71.

Career: J K Paper Mills: Shift-in-Charge 62–63; IIT Kanpur: Sr Tech. Asst 63–64, Asst. Prof. 71–79, Prof. 79–86; Pilkington R&D: Vis. Sci. 74–76; IISc, Bangalore: Prof. 86–2005, Hon. Prof. 2006–.

Scientific Work: Showed that the thickening of dough moulding compounds is due to the formation of ionomeric domains caused by reaction between unsaturated polyester resins and alkaline earth metal oxides. Demonstrated that polyaddition reactions significantly affects curing of epoxides. Successfully simulated an industrial nylon reactor. Developed a new framework for describing breakage of drops in turbulent stirred dispersions. Developed quantitative models of the effects of ultrasound on chemical reactions and performance of lead-acid battery. Nanoparticle formation by precipitation in micelles as well as bulk as modelled.

Important Publications: **(1)** Effect of simultaneous polyaddition reaction on the curing of epoxides (1980) *J. Poly. Sci.: Chem. Ed.* **18**, 857–570. **(2)** Breakage of viscous and non-newtonian drops in stirred dispersion (1986) *Chem. Eng. Sci.* **41**, 65–72. **(3)** Modelling of a batch sonochemical reactor (1994) *Chem. Eng. Sci.* **49**, 877–888. **(4)** Simulation of precipitation reactions in reverse micelles (2000) *Langmuir* **16**, 7139–7149. **(5)** Simplified mathematical model for effects of frezzing on the low-tempertature performance of the lead-acid battery (2009) *J. Electochem. Soc.* **156**, A238–245.

Memberships: Member: Indian Inst. of Chemical Engg • Fellow: INAE 2003.

Ganesan, Angarai Seshiah*

Elected: 1934
Specialization: Scattering of Light; Raman Effect
Date and Place of Birth: 27 May 1900; Vadakancheri, Kerala
Parents: Angarai Seshiah and Srimati Ammal
Spouse and Children: Rajalaxmi; four *s*, two *d*
Last Address: 3, Buty Layout, Laxminagar, Nagpur 440 022, India
***Deceased:** 2 January 1986

Education: Univ. of Madras: MA 22; Univ. of London: PhD 26.

Career: Univ. of Rangoon: Teaching 26–28; IACS, Kolkata: Res. Fellow 28–29; College of Sc., Nagpur: Prof. 29–45; Mahakushal Maha Vidyalaya Jabalpur: Prof. 45–56; Hindu College, Moradabad: 56–58; *Curr. Sci.*: Editor 58–73.

Scientific Work: Spectrum of neutral helium with a critical discussion of Silberstein's formula for the lines; ultraviolet bands of oxygen with the five bands in lambda 1946 to lambda 1864; spark spectrum of neon, study of the lines on the region lambda 2300 to lambda 1850 and indications of most belonging to Ne III; differences of Raman lines in selemic acid and selenates; presence of gallium in mica and schists; scattering of light in vapours and liquids and polarization of light scattered by organic vapours as paraffins, hydrocarbons, alcohols, ethers, alkyl halides, etc.; a memoir of Raman effect in liquids; the first bibliography of the papers on Raman effect; Raman effect in organic compounds as carbon disulphide, amines, organic acids and their derivatives as acid anahydrides, acid dihalides, esters, organic nitrates, sulphides, etc.; Raman effect in fused organic nitrates; involving set up of experimental techniques and arrangements for the above studies in scattering, polarization and critical analysis of observed spectral data.

Memberships: President: Indian Physics Assn.

Ganesh, Krishnarajanagar Nagappa

Elected: 1993
Position: J C Bose Fellow, NCL; Prof. & Dir, IISER., Pune
Specialization: Bio-Organic Chemistry; Bio-Molecular Spectroscopy; Chemistry and Biology of Nucleic Acids; Peptides and Lipids
Date and Place of Birth: 25 May 1953; Mysore, Karnataka
Parents: Nagappa and Parvatamma
Spouse and Children: Suchitra; one *s*, one *d* (Kartik, Suguna)
Address: Indian Institute of Science Education & Research, Central Tower, 1st Floor, Sai Trinity Building,
Near Garware Circle, Pashan, Pune 411 021
Tel. (020) 2590 8006 / 8001 (O), (020) 2586 1698 (R)
email: kn.ganesh@iiserpune.ac.in

Education: Bangalore Univ.: BSc Hons 67, MSc 72; Delhi Univ.: PhD 77; Cambridge Univ.: PhD 80.

Career: CCMB, Hyderabad: Sci. 81–87; NCL, Poona: Sci. 87–2006; Head, Dn of Organic Chem. 94–2006; IISER, Pune: Prof. and Dir 2006–.

Scientific Work: With D. Balasubramanian, mapped the solubilization sites of probes in micelles using NMR spectroscopy to demonstrate that most probes are themselves surface-active and do not penetrate more than 3–4 carbon lengths from the headgroup. Established and internationally reputed school of research in therapeutic and diagnostic applications of oligonucleotide analogues, especially peptide nucleic acids (PNA). Also worked on the structural biology of collagen peptides and the emerging area of DNA nanotechnology. Contributed to the area of chemical education with many popular lectures and a 4-part movie series in NMR spectroscopy for EMR. An active participant in the frontier lecture series of JNCASR to develop interest in chemistry among college teachers.

Important Publications: **(1)** Ferrocene-linked thymine/uracil conjugtes: Base pairing directed self-assembly and supramolecular packing (2008) *J. Org. Chem.* **73**, 1508–1515. **(2)** PDZ domain-mediated dimerization and homeodomain-directed specificy are required for high-affinity DNA binding by SATBI (2008) *Nucl. Acids Res.* 1–16. **(3)** Cyanuryl peptide nucleic acid: synthesis and DNA complexation properties (2008) *Tetrahedron Lett.* **49**, 1314–1318. **(4)** Structure-editing of nucleic acids for selective targeting of RNA (2007) *Curr. Top. Med. Chem.* **7**, 715–726. **(5)** Conformationally constrained PNA analogs: Structural evolution towards DNA/RNA binding selectivity (2005) *Acc. Chem. Res.* **38**, 404–412.

Memberships: Fellow: INSA 99; TWAS 2006.

Awards & Distinctions: IASc Assoc. 84–88 • INSA Medal for Young Scientist 85 • S S Bhatnagar Prize 98 • CRSI Silver Medal 2004 • TWAS Prize 2005.

Ganeshaiah, Kotiganahalli Narayanagowda

Elected: 1992
Position: Prof. and Head, Forestry and Environmental Science, UAS, Bangalore
Specialization: Plant Evolutionary Biology; Plant Genetics and Breeding; Foraging Ecology of Ants; Biodiversity and Conservation
Date and Place of Birth: 10 May 1953; Kotiganahalli
Parents: K V Narayana Gowda and Yellamma
Spouse and Children: T Veena; one *d*
Address: School of Ecology and Conservation, Department of Forestry and Environmental Sciences, University of Agricultural Sciences, GKVK, Bangalore 560 065, India
Tel. (080) 2363 6276, 2333 0153/356 (O), (080) 2363 6412 (R), Mobile: 93421 60639
email: knganeshaiah@gmail.com

Education: Univ. of Agri., Bangalore: BSc 76, MSc 79, PhD 83.

Career: UAS, Bangalore: Res. Asst 79, Instructor 82, Asst Prof. 88–89, Assoc. Prof./Breeder 89, Prof. 96–.

Scientific Work: Contributed significantly towards extending the principles of sociobiology to the evolution of certain plant reproductive strategies. Some of the conceptual issues such as sexual selection, parent–offspring conflict and sibling rivalry proposed for animal systems have been elegantly shown to operate in plants also. Developed novel theoretical arguments in this direction and also offered experimental evidences in support of these arguments. Opened new ways of understanding the plant reproductive features that had hitherto been treated as ‘sterile’ botanical issues.

Important Publications: **(1)** Regulation of seed number and female incitation of mate competition by a pH-dependent proteinaceous inhibitor of pollen grain germination in *Leucaena leucocephala* (1988) *Oecol. (Berlin).* **75**, 110–113. **(2)** Parent–offspring conflict, sibling rivalry and brood size patterns in plants (1988) *Annu. Rev. Ecol. Syst.* 19, 177–205. **(3)** Seed and fruit abortion as a process of self organization among developing sinks (1994) *Physiol.*

Plant. **91,** 81–89. **(4)** Evolution of style-length variability in figs and optimization of ovipositor length in their pollinator wasps: A coevolutionary model (1995) *J. Genet.* **74**, 1&2, 25–39. **(5)** Assessing biodiversity from space: An example from the Western Ghats, India (2002) *Conserv. Ecol.* **6,** 2, 7.

Memberships: Fellow: INSA 97; NAAS 2004.

Awards & Distinctions: Parisara Prashasthi, Govt of Karnataka • Vocational Excellence Award • Karnataka Sahitya Parishat Award (Datti Prashasthi) • Hon. Fellow, JNCASR.

Gangal, Sharad Vishwanath

Elected: 1996
Position: Dir, Inst. of Environmental Medicine, Kasturba Hospital, Mumbai
Specialization: Allergy: Immunology; Biochemistry
Date and Place of Birth: 2 May 1937; Bassein, Maharastra
Parents: Vishwanath D Gangal and Laxmi V
Spouse and Children: Shobhana; one *d*
Address: Lakshmi Niwas, opp. Santoshi Mata Temple (B Cabin), Sane Guruji Path, Naupada,
Thane 400 602, India
Tel. (022) 2537 6961 (R), Mobile: 93249 24307
email: svgangal@hotmail.com

Education: Bombay Univ.: BSc 56, MSc 58, PhD 66.

Career: BARC, Mumbai: Sci. Offr SCZ 64–66; Univ. of Maryland & Univ. of South California: Postdoc Res. Fellow and Res. Asst/Asst Prof. 66–69; Biochemical Unit, VP Chest Inst.: SSO 70–72; CSIR Centre for Biochemicals, Delhi: Sci. 72–92, Centre for Biochemical Technology, Delhi (now known as IBIB) Dir 92–97, Emeritus Sci. 97–2002.

Scientific Work: Research interest in the field of allergy and immunology. Initiated standardization of allergenic extracts used for diagnosis and therapy of allergic disorders. First to show that liposome incorporated allergens produce Th1 response instead of Th2 response and thus reduce the allergenicity. The effects of glycerrhizine on the bronchial hyperreactivity and symptoms of asthma were studied using mouse model and body box specially designed to measure the hyperreactivity. Glycerrhizine is quite effective in reducing the bronchial hyperreactivity and asthma symptoms.

Important Publications: **(1)** Isolation and identification of pollen allergens of Artemisia scoparia (1987) *J. Allergy Clin. Immunol.* **80**, 562–512. **(2)** Polarized TH1 responses by liposome entrapped allergen and its potential in immunotherapy of allergic disorders (1998) *Clin. Exp. Allergy* **16**, 87–91. **(3)** Studies on shared antigenic / allergic components among fungi (1995) *Allergy* **50**, 811–816. **(4)** Increased leukocyte phospholipase A2 activity and plasma lysophophatidylcholine levels in asthma and rhinitis and their relationship to airway senstivity to histamine (1990) *Am. Rev. Respir. Dis.* **142**, 157–161. **(5)** Association of IFNg gene polymorphism with asthma in Indian population (2002) *J. Allergy Clin. Immunol.* **110**, 410–412.

Memberships: Fellow: NASI 94; College of Allergy & Applied Immunology • Member: Assn of Clinical Chemists, India; Indian Immunological Soc.

Awards & Distinctions: Vasvik Award • Subramaniam Oration Award 93 • D N Shivpuri Oration Award.

Gangal, Sudha Gajanan

Elected: 1990
Position: Emeritus Prof., Rajiv Gandhi Inst. of Biotechnology, Bharati Vidhyapeeth, Pune
Specialization: Cancer and Basic Immunology; Cell Biology; Genetic Diseases
Date and Place of Birth: 25 August 1934; Pune, Maharashtra
Parents: Ganesh Krishna Mate and Yamuna
Spouse and Children: Gajanan Atmaram Gangal; two *d* (Uttara, Vaishali)
Address: 4, Mahavishnu Apartments, Dahanukar Colony A, Kothrud, Pune 411 029, India
Tel. (020) 2538 4382, (022) 2659 2387 (R), Mobile: 98223 80902
email: sudha.gangal@yahoo.in

Education: Bombay Univ.: BSc 54, MSc 59, PhD 63.

Career: Univ. of Michigan, USA: Fogarty Intl Postdoc Fellow 64–66; Cancer Res. Inst., Bombay, Immunology Dn: Sci. Offr, Head 72–94; Bai Jerbai Wadia Children's Hospital, Mumbai: Dir of Res. Soc. 94–2001.

Scientific Work: In chronic myelogenous leukaemias, showed specific immunoreactivity in remission patients to CML associated antigens. In Hodgkin's disease, showed T cell hyporesponsiveness in the disease irrespective of its stage and grade, dissecting out each step of T cell activation process. Carried out studies on T cell activation and cytotoxic effector cells capable of killing tumour cell lines and fresh oral tumour cells, and modulation of cytotoxicity by cytokines. Established and characterized human oral squamous cell carcinoma (SCC) cell lines and developed monoclonal antibodies to SSC cells. Succeeded in producing polyclonal and monoclonal anti-idiotypic antibodies to these MAb and showed their relatedness to tumour associated antigens of SCC. Mutation analysis and prenatal diagnosis of thalassaemia.

Important Publications: **(1)** *Principles and practice of animal tissue culture* (2007) Univ. Press Pvt Ltd, Hyderabad. **(2)** Prenatal diagnosis of beta-thalassaemia and other hemoglobinopathies in India (2000) *Prenatal Diagnosis* **20**, 194–201. **(3)** Analysis of DNA ploidy and expression of tumour associated antigens in human oral carcinomas xenografted in nude mice (1997) *Eur. J. Cancer* **33**, 402–407. **(4)** *Oral Oncology* (1994) III B (Research), McMillan India Ltd, 187–190. **(5)** T cell hyporesponsiveness in Hodgkin's disease; Frequency distribution of IL2 (1994) *Indian J. Biol. Biophys.* **31**, 221–225.

Memberships: Fellow: INSA 90; Maharashtra Acad. of Sc.; Indian College of Allergy & Applied Immunology • President: Indian Soc. of Cell Biology; Indian Assn for Cancer Research; Indian Immunology Soc.

Awards & Distinctions: Shakuntala Amir Chand Prize 65 • Raja Ravi Sher Singh of Khalsia Memorial Cancer Research Award 74 • Ranbaxy Foundation Award 91.

Ganguli, Som Nath

Elected: 1992
Specialization: High Energy Particle Physics
Date and Place of Birth: 16 December 1940; Meerut, Uttar Pradesh
Parents: A C Ganguli and Renu
Spouse and Children: Kaberi; one s
Address: Flat No. 6, Aspiration Apartments, 32, Francois Martin Street, Kuruchikuppam,
Pondicherry 605 012, India
Tel. (0413) 234 4643 (R)
email: som_ganguli@yahoo.co.in

Education: Agra Univ.: BSc 58; Bombay Univ.: PhD 66.

Career: TIFR, Bombay: Res Assoc. 59–64, Res. Fellow 64–70, Fellow 70–75, Reader 75–84, Assoc. Prof. 84–90, Prof. 90–93, Sr Prof. 93–2003; Natural Sciences Faculty, Dean 97–2000; CERN, Geneva: Sci. Asst 67–69, Sci. Assoc. 75–76, 82–83, 92–93.

Scientific Work: Worked in the L3 experiment from 1983–2000 which used the LEP machine (Large Electron Positron Collider) at CERN, Geneva, to study electron – positron interactions. During the first phase of LEP which ended in 1995, with centre of mass energies around 90 GeV, the aim was to study the properties of the z guage boson; this study led to the determination of (i) the number of light neutrinos to be three, (ii) the electroweak mixing angle and (iii) the estimation of the mass of the top quark. The second phase of the LEP which ended in 2000, with centre of mass energies up to about 210 GeV led to the determination of the mass and width of the W guage boson, and the lower limit on the mass of the Higgs boson as 114 GeV. During the late 1970s and early 1980s. Involved in several experiments using high resolution bubble chamber to study the properties of charm particles and their production characteristics in hadronic interactions in the framework of the gluon-gluon fusion model.

Important Publications: **(1)** Dependence of multiplicity on energy in high energy *p–p* collisions (1972) *Phys. Lett.* **42B**, 83. **(2)** Regge phenomenology of inclusive reactions (1980) *Phys. Rep.* **67**, 201. **(3)** Transverse corelation of charm pairs and partons transverse momenta (1983) *Z. Phys.* **C21**, 163. **(4)** Results from the L3 experiment at LEP: The L3 collaboration (1993) *Phys. Rep.* **236**, 1. **(5)** Measurement of mass and width of the *w* boson at LEP: The L3 collaboration (1999) *Phys. Lett.* **454B**, 386.

Memberships: Life Member: Indian Physics Assn • Member: Asian Committee for Future Accelerators 96–99 • Chmn: Steering Committee of India – CMS collaboration for the Large Hadron Collider, CERN 94–2002; Planning Committee of the SERC School in Experimental High Energy Physics (DST) 94–2002; Monitoring Committee for the DST project, Heavy ion experiment WASO 93–96.

Ganguly, Anil Kumar*

Elected: 1977
Specialization: Environmental Sciences; Radiation Physics; Chemistry
Date and Place of Birth: 1 November 1918; Faridpur, Bangladesh
Parents: Harshanath Ganguly and Hiranbala
Spouse and Children: Binapani; three *s*, two *d*
Last Address: 1 Saras Baug, Deonar, Bombay 400 088, India
***Deceased:** 17 January 1988

Education: Calcutta Univ.: BSc Hons 38, MSc 40, DSc 49.

Career: Scottish Church College, Calcutta: Lecturer in Chem. 41–49; Univ. of Calcutta: Lecturer in Chem. 49–51; Bengal Immunity Res. Inst., Calcutta: Physical Chemist 51–52; Univ. of Notre Dame, Indiana: Postdoc Res. Assoc. 53–55; BARC, Bombay, Radiation Hazards Control Sec.: Head 56–63, Head of Health Phys. Dn 63–72, Dir of Chemical Group 72–78, Vis. Prof. 81–82.

Scientific Work: Interest centred mainly in the scientific study of the environment: atmospheric, aquatic and terrestrial. Work ranged from marine geochemistry and radiation and ultraviolet dosimetry to systematic investigations on binary nuclear fission and the evaluation of the design and siting of nuclear installations. Contributions to geochemistry include the work on humic acid and on weathering of rocks in the Western Ghats. Theoretical model, based on order–disorder phenomena, explained for the first time several characteristics of fission processes such as asymmetry, charge distribution, odd–even effects and neutron evaporation characteristics. Also undertook developmental work on the non-destructive assay of fertile and fissile materials.

Memberships: Fellow: INSA 79; President: Indian Assn of Radiation Protection.

Awards & Distinctions: Padma Shri 74.

Ganguly, Chaitanyamoy

Elected: 1994
Position: Head, Nuclear Fuel Cycle and Materials Sec, IAEA, Austria
Specialization: Process Metallurgy; Nuclear Fuels; Ceramics
Date and Place of Birth: 31 December 1946; Jessore, Bangladesh
Parents: Satyendra Nath and Annapurna
Spouse and Children: Taposhi; one *s*
Address: Nuclear Fuel Cycle and Materials Section, International Atomic Energy Agency,
Wagramer Strasse 5, A-1400, Vienna, Austria
Tel. (+43-1) 2600 22766 (O), (+43-1) 920 3291 (R), Mobile: 00436 99165 22766
email: c.ganguly@iaea.org

Education: Univ. of Calcutta: BE 68, PhD 80; Training School, BARC, Bombay: Nuclear Sci. & Engg 68–69.

Career: BARC, Radiometallurgy Dn (RMD): Sci. Offr 69–95, Head Advanced Fuels Sec. 78–84, Head RMD 86–95; CGCRI, Kolkata; Dir 95–98; Nuclear Res. Centre, West Germany: kfk, Karlsruhe (IAEA Fellowship) 73–74; KEA, Juelich (Humboldt Fellowship) 84–86; Nuclear Fuel Complex, Hyderabad: Chmn and Chief Executive (DAE) 98–2004; Nuclear Fuel Cycle and Materials SEc., IAEA (UNO), Vienna; Head 2004–.

Scientific Work: Developed hitherto untried plutonium-rich mixed uranium plutonium monocarbide fuel for the Fast Breeder Test Reactor (FBTR) at IGCAR, Kalpakkam; developed a wide variety of uranium-, plutonium- and thorium-based ceramic and metallic fuels. Developed dust-free sol-gel microsphere pelletization (SGMP) process for remote and automated fabrication of highly radioactive Pu and ^{233}U-based oxide, carbide and nitride fuel pellets and the novel SGMP–LTS (low temperature oxidative sintering) for production of UO_2 and $(U, Pu)O_2$ fuel pellets economically. Developed $Al\text{-}UAl_x$, $Al\text{–}U_3O_8$ and $Al\text{–}U_3Si_2$ dispersion fuels for research reactors.

Important Publications: **(1)** Plutonium metallurgy in India (1984) *Bull. Mater. Sci.* **6**, 5, 923–958. **(2)** Development and fabrication of 70% PuC-30% UC fuel for the fast breeder test reactor in India (1986) *Nucl. Technol.* **72**, 59–69. **(3)** Sol-gel microsphere pelletization process for fabrication of high density ThO_2-2% UO_2 fuel for advanced pressurized heavy water reactors (1986) *Nucl. Technol.* **73**, 84–95. **(4)** Fabrication experience of $Al\text{–}U^{233}$ and Al–Pu plate fuel for PURNIMA III and KAMANI research reactors (1991) *Nucl. Technol.* **96**, 72–83. **(5)** Preparation, characterization and out-of-pile property evaluation of (U, Pu)N fuel pellets (1991) *J. Nucl. Mater.* **178**, 234–241.

Memberships: Fellow: INSA 93; NASI 2003; INAE.

Awards & Distinctions: Kamani Gold Medal 83 • National Metallurgist's Day Award 87 • Binani Gold Medal 89 • Malviya Award 91 • Material Res. Soc. of India Medal 93 • Vasvik 2002 • Indian Nuclear Soc. Award 2002 • Padma Shri 2002.

Ganguly, Nirmal Kumar

Elected: 1995
Position: Adviser to Ministry of Health & Family Welfare and Distinguished Biotechnology Fellow, NII, New Delhi
Specialization: Microbiology; Immunology; Biotechnology; Public Health
Date and Place of Birth: 11 November 1941; Gorakhpur, Uttar Pradesh
Parents: P K Ganguly and Nilima
Spouse: Purnima
Address: National Institute of Immunology, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2674 1501 (O), (0172) 268 7172 (R), Mobile: 98115 04314
email: nkganguly@nii.res.in, gangulynk41@yahoo.co.in

Education: Lucknow Univ.: BSc 60; Calcutta Univ.: MBBS 65; PGI, Chandigarh: MD 69.

Career: RG Kar Med. Coll., Kolkata: Physician 66–67; PGI, Chandigarh, Dept of Microbiology: Tutor 68–71, Lecturer 71–73, Asst Prof. 73–78, Assoc. Prof. 78–83, Addl Prof. 82–86, Prof. 86–98; ICMR, New Delhi: Dir-Gen. 98–2007; NII, New Delhi, Dist. Biotechnol. Fellow: 2007–.

Scientific Work: Proposed a common mechanism of secretory diarrhoea for a number of diarrhogenic pathogens including bacteria and parasites whereby also proposed central calcium control of secretory diarrhoea. Described adhesions identifying receptors and understanding of gut immunity. Developed a new sub-unit vaccine for *Salmonella typhimurium*. Comparative analysis of emm type pattern of Group A *Streptococcus* throat and skin isolates from India and their association with closely related SIC, a streptococcal virulence factor; preparedness for AIDS vaccine trials in India; genotyping of Group A *Streptococcus* by various molecular methods; identification and characterization of a spontaneously aggregating amyloid-forming variant of human through phage-display screening of variants randomized between residues 101 and 112; biobanks in developing countries: needs and feasibility.

Important Publications: **(1)** A cluster-randomized effectiveness trial of Vi typhoid vaccine in India (2009) *The New England Journal of Medicine* **361**, 365–344. **(2)** Grand challenges in chronic non-communicable diseases (2007) *Nature* **450**, 494–496. **(3)** Identification and characterization of a spontaneously aggregating amyloid-forming variant of human PrP((90-231)) through phage-display screening of variants randomized between residues 101 and 112 (2008) *Int. J. Biochem. Cell Biol.* **40,** 663–76. **(4)** Biobanks in developing countries: need and feasibility (2007) *Science* **16**, 318, 1074–5. **(5)** Phase 4 trial of miltefosine for the treatment of Indian visceral leishmaniasis (2007) *JID* 196.

Memberships: Fellow: NAMS 86; INSA 93; NASI 93; FRC Path. (London); TWAS 2003; London Royal School of Tropical Medicine.

Awards & Distinctions: Shakuntala Amirchand Award • MOT Iyengar Award • Narayanarao Award • S C Agarwal Award • Padma Bhushan • Life Time Achievement Award for Promoting Clinical Research 2006, Institute of Clinical Research, India • U C Chaturvedi IAMM Life Time Achievement Award 2007 • President, Jawaharlal Institute of PG Medical Education & Res, Chennai • Adviser, Translational Health Sci. & Tech. Inst.

Ganguly, Parthasarathy

Elected: 1994
Specialization: Principles of Spintronics; Atomic Sizes
Date and Place of Birth: 20 January 1942; Hooghly District, West Bengal
Parents: Aboni Kumar Ganguly and Amita Debi
Spouse and Children: Lalitha; one *s*, one *d*
Address: Flat 8B, Montvert I, 140/1A, Pashan Sus, Pashan, Pune 411 021, India
Tel. (020) 2587 0631 (R)
email: patchug@gmail.com

Education: Madras Univ.: MSc 65, PhD 71.

Career: IIT Kanpur: Res. Assoc. 71–76; IISc, Bangalore: Member of Faculty 77–90; NCL, Pune, Physical and Materials Chem. Dn: Head 90–2002, Emeritus Sci. 2002–07.

Scientific Work: Studies on high-temperature superconductors led to the discovery of layered copper oxycarbonates. Studies in low-dimensional systems and nano-scale physics has prompted progress in the area of Langmuir–Blodgett films. Studied building of catalytic reactors, gas adsorption line for BET analysis and worked on building of gas chromatograph, etc. Development of indigeneous photoacoustic spectrometer with variable temperature facilities as well as accessories for the study of materials under flowing gas conditions as well as catalysts under reaction conditions has been carried out.

Gaur, Vinod Kumar

Elected: 1985
Position: Distinguished Prof., IIA, Bangalore
Specialization: Seismo-tectonics; Geophysical Inversion; Earth System Sciences
Date and Place of Birth: 11 July 1936; Azamgarh, Uttar Pradesh
Parents: Indra Bahadur Gaur and Shanti
Spouse and Children: Eryl Jeanne; two *d*
Address: Indian Institute of Astrophysics, Sarjapur Road, Koramangala, Bangalore 560 034, India
Tel. (080) 2553 0672–6/229, 2522 4662 (O), (080) 2343 7410 (R)
email: vgaur@iiap.res.in, gaurvinod@googlemail.com

Education: Lucknow Univ.: BSc 53; BHU: MSc 55; Univ. of London: DIC and PhD 59.

Career: Natl. Phys. Lab., UK: Sci. Offr 59–61; Univ. of Roorkee; Reader 61–66, Prof. 66–83; Natl Geographical Res. Inst., Hyderabad: Dir 83–89; Dept of Ocean Development, New Delhi: Sec. 89–92; CSIR, New Delhi: Sci. 92; C-MMACS, Bangalore: Distinguished Sci. Wished 93–; IIA, Bangalore: Distinguished Prof.

Scientific Work: Discovery of the host rock effect in geoelectromagnetic exploration, seismotectonic setting of the Himalaya, and three-dimensional tomographical modelling of the Indian continental upper mantle.

Memberships: Fellow: INSA 80; NASI 88; TWAS 2000.

Awards & Distinctions: A N Khosla Res. Award 71 • S S Bhatnagar Prize 79 • M S Krishnan Medal 80 • DSc hc, JNTU, Hyderabad Univ. and Andhra Univ. 90 • G P Chatterjee Memorial Lecture Award 91 • M N Saha Birth Centenary Award 2006.

Gavai, Rajiv Vasantrao

Elected: 2003
Position: Sr Prof., TIFR, Mumbai
Specialization: High Energy Physics; Quantum Field Theory; Lattice Field Theories; Quark-Gluon Plasma; Relativistic Heavy Ion Collisions; Early Universe
Date and Place of Birth: 25 July 1954; Akola, Maharashtra
Parents: Vasantrao Narayanrao Gavai and Mangala
Spouse and Children: Rujuta; two s (Vainateya, Gaurang)
Address: Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2430 (O), (022) 2280 4585 (R)
email: gavai@tifr.res.in, URL: http://theory.tifr.res.in/~gavai

Education: Nagpur Univ.: BSc 73; IIT Mumbai: MSc 75; Univ of Mumbai: PhD 81.

Career: Univ. of Bielefeld, Germany: AV Humboldt Fellow 81–82, Vis. Prof. 82–84; Brookhaven Natl Lab., USA: Res. Assoc. 84–86; TIFR: Fellow 86–90; Reader 90–95, Assoc. Prof. 95–98, Prof. 98–2007, Sr Prof. 2007–; CERN, Geneva: Sci. Assoc. 88–89; Univ. of Minnesota: Vis. Prof. 95–96; Tsukuba Univ.: Vis. Prof. 98, Prof. 2001–07; SPhT, Saclay: Vis. Prof. 2003 re-invited (Wiedereinladung) as Humboldt Fellow 2004.

Scientific Work: Distinguished both internationally and nationally as a leader in the field of lattice quantum chromodynamics (QCD) and quark-gluon plasma (QGP), which is a unique and important prediction of the standard model of particle interactions. Amongst his many important results on the phase diagram of strongly interacting matter, the chief ones are the existence of a chiral phase transition, the order of this transition and the location of its critical point. Showed that the production of the so-called strange particles in heavy ion collision experiments at CERN, Geneva and BNL, New York, is consistent with the expectation of quark-gluon plasma production in those collisions. First one to establish the importance of perturbative QCD in evaluating signals of QGP, leading others to join in making critical assessment of such signals. One of the driving forces to get email connectivity to all academic institutions in India via the VIDYANET proposal which was incorporated in the ERNET implementation. Nurtured the lattice field theory activity in India on many scales, including forming a national initiative and attracting young Indian researchers from abroad.

Important Publications: **(1)** Quarks and gluons at high temperatures and densities (1986) *Phys. Rep.* **130**, 217. **(2)** Metastabilities in three flavour QCD at low quark masses (1987) *Phys. Rev. Lett.* **58**, 2519. **(3)** Quarkonium production in hadronic collisions (1995) *Int. J. Mod. Phys.* **A10**, 3043. **(4)** Pressure and nonlinear susceptibilities in QCD at finite chemical potentials (2003) *Phys. Rev.* **D68**, 034506. **(5)** The critical end point of QCD (2005) *Phys. Rev.* **D71**, 114014.

Memberships: Fellow: INSA 2006 • Member: Alice-CMS Task Force International Advisory Committee.

Awards & Distinctions: Alexander von Humboldt Fellowship 81–82, 2004 • IIT Silver Medal 75 • Member: Lattice Field Theory Symposia (92, 95, 98, 99, 2003, 2004, 2006, 2007); Quark Matter (88, 2009).

George, Manapurathu Verghese

Elected: 1973
Position: JNCASR Hon. Prof., NIIST, Thiruvananthapuram
Specialization: Organic Photochemistry; Laser Chemistry
Date and Place of Birth: 3 October 1928; Quilon, Kerala
Parents: M O Verghese and Saramma
Address: Photosciences & Photonics Division, National Institute for Interdisciplinary Science & Technology, Thiruvananthapuram 695 019, India
Tel. (0471) 249 0392 (O), (0471) 243 6452 (R)
email: mvgeorge@rediffmail.com

Education: Madras Univ.: BSc 48; Agri. Univ.: MSc 51, PhD 54.

Career: Union Christian College, Alwaye, Kerala: Demonstrator 48–49; St John's College, Agra: Lecturer 54–56; Post-doc Univ. of Toronto: Postdoc 57; Iowa State Univ. 58; Ohio State Univ. 60; Imperial Coll. London 61; Ludwig Maximillian Univ. Germany 62; IIT Kanpur, Dept of Chem.: Assoc. Prof. 63–65, Prof. 65–72, Sr Prof., 72–88, RRL (now NIIST), Trivandrum: CSIR Emeritus Sci. 88–93: JNCASR Hon. Prof., 94–.

Scientific Work: Overriding theme has been to understand the mechanism of organic reactions, in general, and to use these reactions as effective synthetic tools. Research primarily in the area of photochemistry which centres around few interrelated activities. These include study of new photoreactions and mechanistic investigations of selected organic substrates and photoinduced electron transfer processes. Phototransformations of several types of organic compounds, containing different chromophoric groups have been examined in detail. Examined the role of transient intermediates (radicals, biradicals, singlet and triplet excited states, etc.) through nanosecond and picosecond laser flash photolysis studies.

Important Publications: **(1)** Organic nanomaterials: Morphological control for charge stabilization and charge transport (2009) *Chem. Asian J.* **4**, 806–823. **(2)** Photochromic dibenzobarrlenes: Long-lived triplet biradical intermediates (2007) *J. Am. Chem. Soc.* **129**, 9439–9445. **(3)** Rearrangement of 1,3-dipolar cycloadducts derived from bis(phenylazo) stilbene: A DFT level mechanistic investigation (2007) *J. Org. Chem.* **72**, 367–375. **(4)** Photoinduced electron-transfer processes in fullerene-based donor-acceptor systems (2005) *Helv. Chim. Acta.* **88**, 1291–1308. **(5)** Photoisomerisation of dibenzobarrlenes – A facile route to polycyclic synthos (2005) *Chem. Soc. Rev.* **34,** 48–57. **(6)** Dynamics of photoinduced electron-transfer processes in fullerene-based dyads: Effects of varying the donor strength (2003) *Chem. Phys. Chem.* **4,** 1299–1307.

Memberships: Fellow: INSA 75; TWAS 94 • Member: Sc. & Engg Res. Council; INSA Council.

Awards & Distinctions: S S Bhatnagar Prize 73 • UGC – Hari Om Ashram C V Raman Award 85 • NSA T R Seshadri Medal 85 • TWAS Award 92 • Lifetime Achievement Gold Medal, CRSI 2001.

Gharda, Keki Hormusji

Elected: 1976
Position: Chmn and Managing Dir, Gharda Chemicals Ltd, Mumbai
Specialization: Process Design of Organic Chemical Plants
Date of Birth: 25 September 1929
Address: Gharda Chemical Limited, Jer Mansion, W P Warde Road, off Turner Road, Bandra,
Mumbai 400 050, India
Tel. (022) 2640 3668, (022) 2642 2230 (O)

Education: Univ. of Mumbai: BSc 48, BSc Tech 50, Univ. of Michigan, USA: MSc 52, Phd 56.

Career: Univ of Oklahoma, USA; Asst Prof. 56–58; Gharda Chemicals, Mumbai: Chmn and Managing Dir 58–.

Scientific Work: Organized the manufacture of dyes and textile auxiliaries in the small scale sector. Pioneered the manufacture of ingrain dyes in India. Designed, erected and commissioned a plant to make phenyl acetic acid and phenyl acetamides, precursors for penicillin. In 1971, started a plant to manufacture variety of dyes and fine chemicals.

Awards & Distinctions: P C Ray Award 73.

Ghatage, Vishnu Madhav*

Elected: 1945
Specialization: Aerodynamics; Aircraft Structures
Date and Place of Birth: 24 October 1908; Hasur, Kolhapur Maharashtra
Parents: Madhav Venkatesh and Radhabai
Last Address: 7, Bore Bank Road, Bangalore 560 046, India
***Deceased:** 6 December 1991

Education: Univ. of Bombay: BSc 30, MSc 32; Univ. of Gottingen, Germany: DPhil 36.

Career: Univ. of Bombay: Prof. of Phys. 36–41; Hindustan Aircraft Ltd, Bangalore: Chief Design Engineer 41–42, Chief Designer and Dy Gen. Manager 47–70. IISc, Bangalore: Prof. in Aeronaut. Engg 42–47; Product Designers Pvt. Ltd, Bangalore: Managing Dir 73–90.

Scientific Work: Started with teaching in fluid mechanics, solid mechanics and aircraft design and supervised experiments in low speed wind tunnel. Developed an *ab initio* piston-engined trainer HT-2, *Pushpak* (a piston-engined light aircraft used by Flying Clubs), *Krishak* for observation or patrol duties and HJT-16 *Kiran*, a jet trainer for intermediate pilot training. Also responsible for the design and development of a jet engine of 2500 pound thrust suitable for jet trainer aircrafts, and a ten-seater 'troop-carrying glider' which was successfully flown in 1942.

Memberships: Member: Inst. of Engineers; USA Inst of Aeronautical Sci. • Fellow: R. Aeronautical Soc. of London; Aeronautical Soc. of India: Natl Inst. of Sci. • President: Aeronaut. Soc. of India 59; Indian Soc. of Theor. and Appl. Mech. (ISTAM) 66–67.

Awards & Distinctions: Sir Walter Puckey Prize • National Design Award • Padma Shri 65.

Ghatak, Usha Ranjan*

Elected: 1976
Specialization: Synthetic Organic Chemistry; Bio-Organic Chemistry
Date and Place of Birth: 26 February 1931; Brahmanbaria, Bangladesh
Parents: Hem Ranjan Ghatak and Soudamaini Devi
Spouse and Children: Anindita; one s (Anjan)
Last Address: Department of Organic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Calcutta 700 032, India
***Deceased:** 18 June 2005

Education: Calcutta Univ.: BSc Hons 51, MSc 53, PhD 57.

Career: IACS Calcutta: Sr Scholar 54–57, Sr Res. Assoc. 58–59, Reader 64–76, Prof and Head 77–89, Dir 89–92; IICB, Kolkata: INSA Sr Sci 92–2000;. Univ. of Maine, California and St John's Univ., USA: Postdoc Res. 60, 61 & 63.

Scientific Work: Contributed to stereo-controlled synthesis of polycarbocyclic diterpenoids, and bridged ring compounds. Developed regio- and stereo-specific intramolecular alkylation rearrangements through diazoketones, and new annulation reactions involving cationic and radical processes, leading to the synthesis of complex carbocyclic systems. Achieved total synthesis of some resin acids of profound contemporary interest such as podocarpic acid, desisopropyl dehydroabietic acid and 5-epi-deoxypodocarpic acid. Demonstrated that the stereochemical outcome at the ring structure in acid-catalysed cyclialkylations of 2-(2-arylethyl)-3, 3-dimethyl-1-methylene cyclohexane in greatly influenced by the electronic nature of the substituents on the aromatic ring employing this concept, the group achieved stereocontrolled synthesis of the diterpenes: nimbidiol, sugiol, sempervirol and xanthopherol. A large number of synthetic methodologies for the carbon-carbon bond formations and reorganization were developed.

Important Publications: **(1)** On the racemization of amino acid active esters (1972) in *Peptide chemistry and biochemistry* Marcel Dekker. **(2)** A formylation cyclization method of synthesis of cycloalkenones from unsaturated ketones (1980) *J. Org. Chem.* **45**, 1081. **(3)** Carbon-carbon bond formation and annulation reactions using trimethyl and triethyl orthaformates (1988) *Proc. Indian Acad. Sci (Chem. Sci)* **100**, 235–252.

Memberships: Fellow: INSA 90; Chemical Soc. of London.

Awards & Distinctions: Univ. of Calcutta M L Mallick Medal 53 • S S Bhatnagar Prize 74 • ERS1 Gold Medal 2003.

Ghose, Robert Lal Mohan*

Elected: 1952
Specialization: Botany; Genetics
Date and Place of Birth: July 1903
Parent: J D Ghose
Last Address: 23, New Road, Dehra Dun, India
***Deceased:** 1995

Education: Univ. of Allahabad: MSc.

Career: Institute of Plant Industry, Indore: Botanist 28–38; Jute Agri. Res. Lab., Dacca: Botanist 38–47; Central Rice Res. Inst., Cuttack: Geneticist and Botanist 48–56, Dir 56–58; Bahr El Ghazal, Sudan, Dept of Agri.: FAO Rice Production Expert 59–63.

Scientific Work: Contributions to our understanding on cotton, particularly with reference to anthocyanin genetics, its ecology and techniques of plant breeding. Continued genetic work on jute with special reference to anthocyanic genetics of the plant. Evolved new techniques in breeding methods with special reference to jute crop which also found application in other fibre crops. Made equally important contributions in the fields of plant breeding, genetics and field experimentation of yet another economically important crop, rice.

Important Publication: *Rice in India* (Monograph) (1956) ICAR, New Delhi.

Ghose, S L*

Elected: 1936
Specialization: Botany; Algology
Date of Birth: 13 December 1893
Last Address: Government College, Lahore
***Deceased:** 24 March 1945

Education: Punjab Univ.: MSc; Univ. of Cambridge: PhD 23.

Career: Univ. of Rangoon: Biology Dept 23–28; Govt College, Lahore, Dept of Botany: Asst Prof. and Prof. 28–45.

Scientific Work: Contributions to the study of Myxophyceae of Northern India and Burma are of an outstanding nature. Showed the way into a realm hitherto practically untouched and unexplored.

Memberships: Fellow: INSA 35• President: Sec. of Botany Indian Sc. Congress 33.

Ghosh, Amit

Elected: 2000
Position: Emeritus Sci., NICED, Kolkata
Specialization: Molecular Biology of *V. cholerae;* Recombinant DNA Technology
Date and Place of Birth: 24 November 1944; Calcutta, West Bengal
Parents: Birendra Bhushan Ghosh and Uma
Spouse and Children: Anindita; one *d* (Hrileena)
Address: National Institute of Cholera and Enteric Diseases (ICMR), JICA Building,
P-33, CIT Scheme XM, Beliaghata, Kolkata 700 010, India
Tel. (033)2442 4248 (R), Mobile: 94336 92858
email: amitghosh24@yahoo.com

Education: Calcutta Univ.: BSc Hons 66, MSc 68, PhD 75.

Career: SINP Kolkata: Res. Fellow 69–74; Pool Offr 91–92; BITS Pilani: Lecturer 74–75; Univ. of Rochester: Post-doc Fellow 76; Univ. of Wisconsin: Res. Assoc. 76–81; IICB, Calcutta: Sci. 82–90; Natl Cancer Inst. Biochemistry, USA: Vis. Sci. 87–89; Inst. of Microbial Technol.: Sci. 90–98, Dir 98–2004, Sci., Sr Dir Grade 2004–05; Indian Inst. of Advanced Res., Gandhi Nagar, Gujarat: Dir, School of Biological Sc. 2005–08; Natl Inst. of Cholera & Enteric Diseases, Kolkata: Emeritus Sci. 2008–.

Scientific Work: Acclaimed for his work on the development of cholera vaccine and studies, which provided clues on the origination of new clones of *Vibrio cholerae*. Research areas include molecular epidemiology, evolution of drug resistance and vaccine development. Utilizing a novel strategy developed a recombinant live oral cholera vaccine which is completely non-reactogenic and 100% protective in animals. This vaccine, first of its kind to be developed anywhere in the world outside USA, is patented in the USA and the PCT countries. Molecular studies carried out provided one of the first clues on how new clones of *V. cholerae* could possibly emerge. Emergence of multi-drug strains of *V. cholerae* in recent years has become a serious problem. Molecular mechanisms responsible for the emergence of multi-drug resistant is not at all well worked out. Has shown that integrons play an important role in the evolution of drug resistance in *V. cholerae* and led to the discovery of a number of new drug cassettes in this organism.

Important Publications: **(1)** Lack of repair of ultraviolet damage in *M. gallisepticum* (1977) *J. Mol. Biol.* **116**, 337–344. **(2)** Inhibition of *Mycoplasma* cell division by cytochalasin (1978) *Cell* **13**, 57–64. **(3)** Molecular characterization of *V. cholerae* of Biotype EL Tor Strains isolated between 1992 and 1995 in Calcutta, India: Evidence for the emergence of a new clone of the EL Tor Biotype (1997) *J. Infect. Dis.* **175**, 1134–1141. **(4)** Diverse CTX ΦS and evolution of new pathogenic *V. cholerae* Lower (1998) *Lancet* **352**, 457–458. **(5)** Construction of a recombinant live oral vaccine from a non-toxigenic strain of *V. cholerae* of sereotype Inaba biotype EL Tor and assessment of reactogenecity and immunogenicity in rabbit model (1999) *Immunol. Lett.* **68**, 219–227.

Memberships: Fellow: NASI 92; INSA 2004; Biotech Res. Soc. of India • Member: Sigma Xi: USA • Guha Res. Conf.

Awards & Distinctions: Ranbaxy Res. Award 98 • CSIR Shield for Process Technology 2002 • Platinum Jubilee Lecture Award: Environmental Sciences, Indian Sc. Congress, Ahmedabad 2005 • B K Bachhawat Memorial Lecture, Natl Centre for Plant Genome Res. New Delhi 2006 • 11th Sibte Hasan Zaidi Oration, Ind. Toxicology Res. Centre, Lucknow • Life Time Achievement Award, Biotech Res. Soc. of India 2007 • Vice President: NASI 2001–02; Sectional President: Biol. Sci., 74th Annual Session, NASI.

Ghosh, Amitabha

Elected: 1998
Position: INSA Sr Sci., Bengal Engg & Sci. Univ., Howrah
Specialization: Manufacturing Science; Machine Dynamics and Mechanisms; Robotics; Classical Mechanics
Date and Place of Birth: 3 December 1941; Barhra, West Bengal
Parents: Achyutananda Ghosh and Smritikana
Spouse and Children: Meena; two *s*
Address: Science and Technology Block, Bengal Engineering and Science University, Shibpur,
P.O. Botanic Garden, Howrah 711 103, India
Tel. (033) 2668 0521/441 (O), (033) 2668 2424 (R)
email: amitabha@iitk.ac.in, amitabhaiitk@gmail.com

Education: Calcutta Univ.: BE 62, ME 64, DPhil 69.

Career: Bengal Engg College: Lecturer 65–70; IIT Kanpur: Asst Prof. 71–75, Prof. 75–97, 2002–06; IIT Kharagpur: Dir 97–2002; Bengal Engg & Sc. Univ.: Hon. Distinguished Prof. 2006–; INSA Sr Sci. 2006–.

Scientific Work: Kinetoelastodynamic analysis of high speed mechanisms; discovering the phenomenon of effect of magnetic field on wear; discovery of and conducting first experiment on chaos in mechanical engineering; developing vibration control technique through introduced stress concentration; using electrochemical discharge for micromanufacturing; introducing robotics and mechatronics in engineering curricula in India; developing the theory of velocity-dependent inertial induction based on extended Mach's principle.

Important Publications: **(1)** *Theory of mechanisms and machines* (1976, 1992, 1998) (3rd Ed.) Affiliated East West Press, New Delhi. **(2)** *Manufacturing science* (1986) Affiliated East West Press, New Delhi & Ellis Horwood, UK. **(3)** *Kinematic analysis & synthesis of mechanisms* (1994) CRC Press, USA. **(4)** *An introduction to rapid prototyping* (1997) Affiliated East West Press, New Delhi. **(5)** *Origin of inertia* (2000) Apeiron, Montreal & (2002) Affiliated East West Press, New Delhi.

Memberships: Fellow: INAE 94; INSA 2000; NASI 2002; Institution of Engineers (India) • Hon. Life Member: Assn of Mechanisms and Machines.

Awards & Distinctions: Distinguished Teacher Award, IIT Kanpur • National Design Award NDRF • Life Time Contribution Award AIMTDR • Engineering Personality of the Year Award IE(I) • Sr Fellow, Alexander von Humboldt Foundation.

Ghosh, Asok*

Elected: 1982
Specialization: Avian Endocrinology; Histochemistry; Histology
Date and Place of Birth: 20 January 1927; Jamalpur
Parents: Charuchandra and Charubala
Spouse and Children: Ira; one *s*
Last Address: Department of Zoology, University of Calcutta, 35, Ballygunge Circular Road, Calcutta 700 019, India
***Deceased:** 29 September 2003

Education: Calcutta Univ.: MSc 48; McGill Univ.: MSc, PhD 55.

Career: Central Drugs Lab., Calcutta: Hon. Res. Worker 49–52; Univ. of California, USA: Jr Specialist 53; Berkeley, California, USA: Vis. Endocrinologist 61; McGill Univ., Montreal, Canada: Teaching Asst. 54–65; Bengal Veterinary College, Calcutta: Asst Prof. 56; Univ. of Calcutta: Lecturer 57–70, Reader 70–74, Prof. 74–92, CSIR Emeritus Sci. 92.

Scientific Work: Researched on the correlation of avian phylogeny with epinephrine-norepinephrine ratio. Discovered that the differential pattern of synthesis, storage and release of adrenomedullary catechol hormones depend upon neurohormonal modulation. Shed light on the etiology of resistance of avian diabetogenesis – a finding of profound biomedical significance.

Memberships: Fellow: INSA 78, NASI • President: Indian Sc. Congress Zoological Sec.; Zoological Soc. 90–92.

Awards & Distinctions: Hari Om Trust Award • J C Bose Award 79 • J G Law Medal 84.

Ghosh, Aswini

Elected: 2009
Position: Sr Prof., IACS, Kolkata
Specialization: Condensed Matter and Materials Physics; Disorder (electronic and ionic) and Nano Materials; Relaxation Dynamics and Scaling; Dielectric Spectroscopy; Short Range Structure and Transport Properties
Date and Place of Birth: 1 December 1953; Garutia, West Bengal
Parents: T Ghosh and Menoka
Spouse and Children: Aloka; one *s*, one *d* (Shamik, Shaoli)
Address: Department of Solid State Physics, Indian Association for the Cultivation of Science,
2A & B Raja S C Mullick Road, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 4971/314 (O), (033) 2425 8642 (R)
email: sspag@iacs.res.in; http://www.iacs.res.in/ssp/sspag/sspag.html

Education: Univ of Calcutta: BSc 76; Univ. of Kalyani: MSc 78; Jadavpur Univ: PhD 87.

Career: IIT Kharagpur: Asst. Prof. 90; IACS, Kolkata: Lecturer 91–94, Sr Lecturer 94–99, Reader 99–2000, Prof. 2005–08, Sr Prof. 2008–

Scientific Work: Made significant contributions to the understanding of the structure, dynamics and relaxation in disordered materials and nanocomposites. Developed a scaling formalism, which is recognized as 'Ghosh's scaling model' providing significant insights into the relaxation dynamics in these materials. Contributed significantly to resolving the mystery of mixed mobile ion effect in glass science and to the development of a method for the determination of the mobile carrier concentration in the dynamic process in conducting glasses from the analysis of the conductivity spectra using linear response theory. Determined the short-range structure of glasses and correlated them with dynamics properties. Also contributed to the synthesis of nanoparticles, nanowires and nanorods using glass-nanocomposites and polymers as templates. Determined the charge transport mechanism in recently developed cathode materials and polymer electrolytes for solid state lithium ion battery.

Important Publications: **(1)** Scaling of the conductivity spectra in ionic glasses: Dependence on the structure, (2000) *Phys. Rev. Lett.* **84**, 10, 2188–2190. **(2)** Structure and properties of nonconventional glasses in the binary bismuth cuprate system (1995) *Phys. Rev.* **B51**, 2, 851–856. **(3)** Transport-properties of vanadium germanate glassy semiconductors (1990) *Phys. Rev.* **B42**, 9, 5665–5676. **(4)** A new family of lead-bismuthate glass with a large transmitting window (2000) *J. Non-Cryst. Solids* **271**, 1–2, 157–161. **(5)** Conductivity spectra in fast ion conducting glasses: Mobile ions contributing to transport process (2004) *Phys. Rev.* **B70**, 172203.

Memberships: Indian Physical Soc; Materials Research Soc. of India; American Ceramic Soc.; Indian Sc. Congress Assn.

Awards & Distinctions: D N Agrawal Memorial Award 2008 • Indian Ceramic Soc. • MRSI Medal • Marie Curie Fellowship, Commission of the European Community.

Ghosh, Jayanta Kumar

Elected: 1990
Position: Prof. Emeritus, ISI, Kolkata
Specialization: Bayesian Mathematical Statistics; Applications
Date and Place of Birth: 22 May 1937; Calcutta
Parents: Ambernath and Shanti
Spouse and Children: Ira; one *s*, one *d*
Address: Indian Statistical Institute, 203, B T Road, Kolkata 700 108, India
Tel. (033) 2575 3401 (O), (033) 2486 1681 (R)
email: jayantag1@gmail.com

Education: Calcutta Univ.: BA 56, MA 58, DPhil 64.

Career: Calcutta Univ.: Lecturer 62–64; Univ. of Illinois: Vis. Asst Prof. 64–66; ISI, Calcutta: Assoc. Prof. 66–69, Prof. 70–84, Distinguished Sci. and Dir 84–92, Dist. Sci. and Jawaharlal Nehru Prof. 92–2002, Prof. Emeritus 2002–; Purdue Univ.: Prof. 2009.

Scientific Work: Has used sufficiency and invariance under a group of transformations to construct sequential tests of composite hypotheses. Results on higher order efficiency settled several famous problems posed by Fisher and Rao. In course of proving this, obtained useful, often cited results on Edgeworth expansions, valid in the L1-sense. Current work on a Bayesian analogue and proof of Bartlett correction and the series of papers on non-informative priors are likely to have important applications. Most recent work is on Bayesian nonparametries, mixture models, multiple testing and model selection.

Important publications: **(1)** The relationship between sufficiency and invariance with an application to sequential analysis (1965) *Ann. Math. Stat.* **36**. **(2)** On the validity of the formal Edgeworth expansion (1978) *Ann. Statist.* **6**. **(3)** Second order efficiency of he m.l.e. with respect to any bounded bowl-shaped loss function (1980) *Ann. Stat.* **8**. **(4)** A decomposition for the likelihood ratio statistic and the Bartlett correction – a Bayesian argument (1990) *Ann. Stat.* **18**. **(5)** Stochastic approximation and Newton's estimate of a mixing distribution (2009) *Stat. Sci.*

Memberships: Fellow: INSA 82; NASI 90; USA Inst. of Mathematical Statistics • President: Intl Statistical Inst.

Awards & Distinctions: S S Bhatnagar Prize 81.

Ghosh, Mrinal Kanti

Elected: 2000
Position: Prof., IISc, Bangalore
Specialization: Stochastic Control; Stochastic Differential Games; Stochastic Finance
Date and Place of Birth: 25 November 1956; Chaibasa, Jharkhand
Parents: Sudhir Kumar Ghosh and Uma
Spouse and Children: Kuhu; one *s*
Address: Department of Mathematics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3210 (O), (080) 2331 1380 (R)
email: mkg@math.iisc.ernet.in

Education: Ranchi Univ.: BSc 76, MSc 80, IISc: PhD 89.

Career: DAV Jawahar Vidya Mandir: Teacher 79–81; TIFR-IISc Progr: Participant 81–83; TIFR: Res. Asst 84–92; IISc: Asst Prof. 92–98, Assoc. Prof. 98–2004, Prof. 2004–.

Scientific Work: Work in stochastic control, stochastic dynamic games and mathematical finance. Major work includes fundamental contributions to ergodic control of degenerate and nondegenerate diffusions, a new approach to treat the problems in stochastic dynamic games and stochastic hybrid systems. This body of work combines sophisticated probabilistic and analytic techniques to develop an `existence theory' for optimal control, Nash equilibria, etc., and to analyze the corresponding Hamilton–Jacobi–Bellman/Isaac's equations. Interesting spin-offs of this work include a Harnack inequality for elliptic systems and functional limit theorems for switching diffusions. Important contributions to mathematical finance include a completely new method of assessing corporate liabilities and finding default probabilities.

Important Publications: **(1)** Ergodic control of multidimensional diffusions II: Adaptive control (1990) *Appl. Math. Optim.* **21**, 191–220. **(2)** Optimal control of switching diffusions with application to flexible manufacturing systems (1993) *SIAM J. Control Optim.* **31**, 1183–1204. **(3)** Ergodic control of switching diffusions (1997) *SIAM J. Control Optim.* **35**, 1952–1988. **(4)** Harnack's inequality for cooperative weakly coupled elliptic systems (1999) *Commun. Partial Differ. Equ.* **24**, 1555–1571. **(5)** Differential game with ergodic payoff (2005) *SIAM J. Control Optim.* **43**, 2020–2035.

Memberships: Fellow: NASI 2006.

Awards & Distinctions: C L Chandna Award for Excellence in Teaching and Research 2000.

Ghosh, Phanindra Nath*

Elected: 1934
Specialization: Optics; Applied Physics
Date and Place of Birth: 11 February 1884; Mazilpur, West Bengal
Last Address: University College of Science, 92, Upper Circular Road, Calcutta, India
***Deceased:** 23 December 1946

Education: Univ. of Calcutta: BA 05, MA 08, PhD 20, ScD.

Career: Univ. College of Sci., Calcutta, Dept of Phys.: Lecturer 14, Prof. 25.

Scientific Work: Investigations in molecular spectroscopy, dielectrics and design of electrical measuring instruments.

Memberships: Fellow: INSA 35; Asiatic Soc. • President: Indian Physical Soc.

Ghosh, Subir Kumar

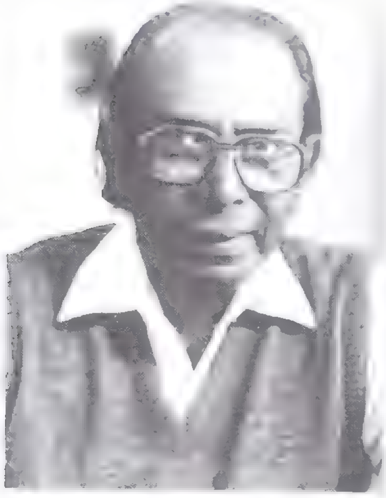
Elected: 1998
Position: Prof., TIFR, Mumbai
Specialization: Computational Geometry and Applications; Robot Motion Planning; Geometric Graph Theory
Date and Place of Birth: 14 July 1953; Calcutta, West Bengal
Parents: Saral Nath Ghosh and Bela Rani
Spouse and Children: Sumana; one *s* (Rajarshi)
Address: School of Computer Science, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2546 (O), (022) 2280 4563 (R)
email: mkg@math.icsc.ernet.in, ghosh@tifr.res.in; www.tcs.tifr.res.in/~ghosh/

Education: Calcutta Univ.: BTech 75; Jadavpur Univ.: PG 77; Univ. of Mumbai: PhD 87.

Career: TIFR: Sci. Offr 78–88, Res. Asst. 88–90, Fellow 90–93, Reader 93–96, Assoc. Prof. 96–99, Prof. 99–.

Scientific Work: Efficient/optimal sequential, parallel and on-line algorithms designed for visibility, motion planning and related optimization problems are significant contributions to the development of computational geometry. Specifically, the sequential algorithm for computing visibility graphs in output sensitive time and NC algorithm for minimum link-path problem settled longstanding open problems in computational geometry. Introduced the notion of visibility from a set which was later used for designing efficient algorithms. Also proposed four necessary conditions for recognizing visibility graphs of simple polygons, which is a seminal work.

Ghosh, Subir Kumar*



Elected: 1989
Specialization: Structural Geology
Date and Place of Birth: 1 March 1932; Calcutta
Parents: Subodh Chandra Ghosh and Ila
Spouse and Children: Sheila; one *s*
Last Address: Department of Geological Sciences, Jadavpur University, Calcutta 700 032, India
***Deceased:** 30 October 2008

Education: Calcutta Univ.: BSc 51, MSc 53, PhD 61; Uppsala Univ., Sweden: Filosofi Doktorsgfad 67.

Career: Uppsala Univ., Sweden: Vis. Sci. of SIDA 65–67, Swedish Intl Geodynamics Project: Vis. Sci. 74–76; State Univ. of New York, USA: Vis. Prof. 87; Asutosh College, Calcutta: Lecturer 54–55; Presidency College, Calcutta: Res. Scholar 56–58; Jadavpur Univ., Calcutta: Lecturer 58–65, Reader 65–79, Prof. 79–98, INSA Sr Sci. 98–2007, Emeritus Sci. 2007–08.

Scientific Work: Research relating to structural and metamorphic histories of the Kuilapal area, West Bengal; delineation of large scale reclined folds in the banded gneissic complex of Rajasthan; structure of the Scandinavian Caledonides in two areas, in Norway and Sweden; mechanics of buckle folding in single and multilayers; rotation of rigid inclusions in a ductile matrix; experimental and theoretical shearing along axial plane foliation; modification of penecontemporaneous contortions by diastrophic movements; tectonic history of Jharia coal basin; sequence of superposed folding and shearing in Singhbum shear zone and part of Kolar schist belt; theoretical study on measure of noncoaxiality of deformation; theory of chocolate tablet boudinage; buckle folding in constrictional deformation; wax model experiments on transform faulting.

Memberships: Member: Intl Assn of Structural and Tectonic Geologists • Fellow: INSA; Geological Soc. of India.

Awards & Distinctions: S S Bhatnagar Prize 87.

Ghosh, Subrata

Elected: 1998
Position: Sr Prof., IACS, Kolkata
Specialization: Cycloaddition Reactions; Total Synthesis of Natural Products
Date and Place of Birth: 8 April 1950; Calcutta, West Bengal
Parents: Niranjan and Mallika
Spouse and Children: Manju; two *s* (Soumya, Shuvam)
Address: Department of Organic Chemistry, Indian Association for the Cultivation of Science, Jadavpur,
Kolkata 700 032, India
Tel. (033) 2473 4971/402 (O), (033) 2425 9763 (R), Mobile: 98304 50170
email: ocsg@iacs.res.in

Education: Calcutta Univ.: BSc 70, MSc 72, PhD 78.

Career: IACS: Res. Fellow 74–77, Res. Asst 77–79; Lecturer 82–84, 86–87, Reader 87–94, Prof. 94, Sr Prof. 2005–; Case Western Reserve Univ.: Res. Asst 79–81, 84–86.

Scientific Work: Major scientific works include development of novel routes (first effort from India) towards the bridged-ring skeleton of the anticancer drug taxol, demostration of the role of copper (I) catalysis in promoting the reactivity and controlling the stereoselectivity in photocycloaddition of unactivated 1,6-dienes and its application in stereocontrolled synthesis of a few complex cyclopentanoid natural products, asymmetric synthesis of anti-HIV drug(-)-carbouir anti-inflammatory agent (-)-bacillariolide I and neurotrophic agent (-)-talaumidin. Recent contributions include development of single-step protocols based on domino olefin metathesis for accessing the highly complex structures present in natural products such as ingenol, guanacastepenes, umbellactal, anticancer diterpene eletherobin, antiplasmodial caribenol A etc.

Important Publications: **(1)** Synthesis of fused cyclic systems containing medium-sized rings through tandem ROM-RCM of norbornene derivatives embedded in a carbohydrate template (2009) *J. Org. Chem.* **74**, 1957. **(2)** Domino metathesis involving ROM-RCM of substituted norbornenes, Rapid access to densely functionalized tricyclic bridged and condensed ring systems (2007) *Org. Lett.* **9**, 2537. **(3)** Stereodivergent approach to the asymmetric synthesis of bacillariolides: A formal synthesis of ent-bacillariolide II (2006) *Org. Lett.* **8**, 3781. **(4)** Copper(I)-catalyzed intramolecular asymmetric [2+2] photocycloaddition, Synthesis of both enantiomers of cyclobutane derivatives (2004) *Org. Lett.* **6**, 1903. **(5)** Ring closing metathesis in carbohydrate annulation, (1998) *Angew Chem. Int. Ed. Engl.*, **37**, 3298.

Memberships: Chemical Research Soc. of India; Indian Chemical Soc.

Awards & Distinctions: CRSI Bronze Medal • ASR Anjaneyulu 60th Birthday Commemoration Medal, Indian Chemical Soc. • M K Rout Memorial Lecture, Orissa Chemical Soc. • DST Ramanna Fellowship.

Ghosh, Swapan Kumar

Elected: 1991
Position: Head, Theoretical Chemistry Section, BARC, Mumbai
Specialization: Theoretical Chemistry; Computational Materials Science; Soft Condensed Matter Physics
Date and Place of Birth: 4 September 1949; Digpar, Bankura, West Bengal
Parents: Bankim Chandra Ghosh and Pushpa
Spouse and Children: Mandira; one *s* (Sourav)
Address: Theoretical Chemistry Section, Chemistry Group, Bhabha Atomic Research Centre, Trombay, Mumbai 400 085, India
Tel. (022) 2559 5092 (O), (022) 2557 8411 (R)
email: skghosh@barc.gov.in

Education: Univ. of Burdwan: BSc Hons 70, MSc 72; IIT Bombay: PhD 82.

Career: Balurghat College, West Bengal: Lecturer 74–75; BARC Training School: Trainee 75–76; BARC, Bombay: Sci. Offr 76–; Univ. of North Carolina, USA: Res. Assoc. 84–85.

Scientific Work: Contributed to the formulation of quantum chemistry in three-dimensional space using single-particle density quantities as basic variables, with the final aim of bypassing the many-particle wave function in configuration space. Developed the density functional theory (DFT) for time-dependent many-electron systems involving arbitrary electric and magnetic fields, provided simpler routes to the calculation of response properties and introduced new energy density functionals leading to direct methods for the calculation of electron density. Generalized the concepts of electronegativity and chemical hardness, providing a new unified formulation for describing both covalent and ionic binding in molecular systems within an electronegativity-based picture. Developed a thermodynamic picture of the electron cloud which strengthened the foundation of several important chemical concepts and led to better understanding of chemical reactivity. Contributed to the DFT of macroscopic systems by proposing new excess free energy density functionals, and applying to the structure of complex fluids under confinement at interfaces and pores, solvation forces, ordering in charge-stabilized colloidal suspensions, and an extension of the DFT of freezing to quantum systems. Developed a new mode coupling theory for diffusion in fluid mixtures, derived new universal scaling laws relating diffusivity to entropy, investigated dynamics of flexible polymer chains, fluid flow through nanotubes, and proposed a unified one-dimensional formulation for describing multidimensional dynamical processes of diverse origin. Provided unification of density functional and quantum fluid dynamical approaches for the treatment of classical and quantum phenomena within a single unified framework, the central theme of the work being a description of many-particle systems (quantum as well as classical) within a single-particle picture, thus broadening the applicability of the density concept to the domain of multiscale materials modelling covering the full range of microscopic, mesoscopic and macroscopic length scales.

Important Publications: **(1)** A one-dimensional energy diffusion approach to multi-dimensional dynamical processes in the condensed phase (2008) *J. Phys. Chem.* **A112**, 752–757. **(2)** Spin-polarised generalisation of the concepts of electronegativity and hardness and the description of chemical binding (1994) *J. Am. Chem. Soc.* **116**, 3943–3948. **(3)** Density functional theory of many-electron systems subjected to time-dependent electric and magnetic fields (1988) *Phys. Rev.* **A38**, 1149–1158. **(4)** On the concept of local hardness in chemistry (1985) *J. Am. Chem. Soc.* **107**, 6811–6814. **(5)** Schrödinger fluid dynamics of many-electron systems in a time-dependent density-functional framework (1982) *J. Chem. Phys.* **77**, 342–348.

Memberships: Fellow: INSA 99; NASI 2001.

Awards & Distinctions: CRSI Silver Medal.

Ghosh, Swarna Kanti

Elected: 2006
Position: Prof., TIFR, Mumbai
Specialization: Infrared Astronomy; Interstellar Medium; Astronomical Instrumentation
Date and Place of Birth: 5 September 1955; Bankura, West Bengal
Parents: Nanda Dulal Ghosh and Savitri
Spouse and Children: Ruplekha; one *s*, one *d*
Address: Department of Astronomy & Astrophysics, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Mumbai 400 005, India
Tel. (022) 2278 2364 (O), (022) 2280 4645 (R), Mobile: 98672 04645
email: swarna@tifr.res.in

Education: Kurukshetra Univ.: BSc Hons 73, MSc 75; Univ of Mumbai: PhD 82.

Career: TIFR: Res. Scholar 75–78, Res. Assoc. 78–83; Fellow 83–89; Reader 89–94, Assoc. Prof. 94–98, Prof. 98–; Max Planck Inst., Germany: Postdoc Fellow 84–86; Inst. of Space & Astronautical Sci. (ISAS-JAXA), Japan: Vis. Prof. 2000–01.

Scientific Work: Indigenous development of remote controlled balloon borne far-infrared (FIR) astronomical telescopes (75 cm; 100 cm) with sophisticated orientation and stabilization systems allowing high angular resolution (diffraction limited) mapping at 100–300 μ. Study of galactic star forming regions in FIR continuum as well as the astrophysically important [C II] line at 158 micron with a high resolution (~1700) spectrometer. Detection of colder components of the interstellar dust and better understanding of the interstellar medium (ISM) and star formation. Development of radiative transfer schemes to predict spectral energy distribution and morphology of galactic star forming regions, including – special geometry (two nearby embedded sources); transient heating of very small grains and non-equilibrium processes of PAHs; clumpiness of the ISM. Detection of warping of the galactic disk and distribution of stars and warm dust from MSX mid-infrared survey. Extraction of spatial distribution of emission in the unidentified infrared bands and their carriers.

Awards & Distinctions: S N Seshadri Memorial Award for Instrumentation, Indian Physics Assn.

Giri, Kramadhati Venkata*

Elected: 1941
Specialization: Plant Biochemistry
Date and Place of Birth: 10 February 1907; Madanapalle, Andhra Pradesh
Parents: K Surappa and Ambaiamma
Spouse and Children: Janakiamma; two *s*, two *d* (Ravi, Chandrasekhar, Usha, Amba)
Last Address: Department of Biochemistry, Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 17 July 1958

Education: St. Joseph's College, Tiruchi: BA; Univ. of Calcutta: MSc, DSc 38; IISc, Bangalore: AIISc.

Career: Nutritional Res. Lab., Coonoor: Enzyme Chemist 39–40; Andhra Univ.: Gowthami Lecturer and Reader in Biochemistry 40–43; IISc, Bangalore: Lecturer in Biochemistry 43–50, Prof. and Head 50–58.

Scientific Work: Pioneer in enzyme research. Studies were concerned with purification and documentation of properties of some key enzymes in intermediary metabolism. Research on carbohydrate metabolism, a systematic search for phosphorylase in Indian pulses showed that green gram was a good source of the enzyme. A systematic survey of the free amino acid content of several edible leaves and leaves of the citrus family was made in connection with research on nitrogen metabolism. Reported the presence of free hydroxyproline in the plant kingdom. Initiated a systematic study of the mechanism of blood coagulation. Developed a simple technique of agar electrophoresis for the separation of serum proteins.

Memberships: Fellow: INSA 56 • Chmn: Intl Biochemical Soc.

Gnanamuthu, Chinnadurai Pittendrigh*

Elected: 1952
Specialization: Animal Physiology; Animal Ecology
Date and Place of Birth: 29 April 1901; Palayamkottai, Tamil Nadu
Parent: P Chinnadorai
Spouse and Children: Kamala, three *d*
Last Address: No. 4, Raja Annamalaipuram, Madras 600 028, India
***Deceased:** 18 March 1969

Education: Madras Univ.: BA 23, MA 38, DSc 35.

Career: American College, Madurai, Dept of Zoology: Asst Lecturer 23–26, Prof. and Head 28–46; Univ. Zoological Res. Lab., Madras Univ.: Dir 46–64.

Scientific Work: Published papers on the exquisite architecture of protozoan shells, respiration in frogs and reptiles, parasitic copepods of bony fish and osmoregulation in prawns. Animal physiology lectures were scholarly and instructive.

Memberships: Fellow: Zoological Soc., London.

Awards & Distinctions: Curzon Prize.

Godbole, Rohini Madhusudan

Elected: 1992
Position: Prof., IISc, Bangalore
Specialization: Elementary Particle Physics; Field Theory and Phenomenology
Date and Place of Birth: 12 November 1952; Pune
Parent: M Godbole and Malati M. Godbole
Address: Centre for High Energy Physics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2845 (O), (080) 2360 7798 (O), (080) 2360 8357 (R)
email: rohini@cts.iisc.ernet.in, godbolerm@gmail.com

Education: Univ. of Pune: BSc 72; IIT, Bombay: MSc 74; State Univ. of New York at Stony Brook, USA: PhD 79.

Career: TIFR, Bombay: Vis. Fellow 79–82, Adjunct Faculty 2005; Bombay Inst of Sc.: CSIR Fellow 82; Univ. of Bombay: Lecturer 82–88, Reader 88; Univ. of Dortmund, Germany: Vis Sci. 86–889; IISc, Bangalore, CHEP: Assoc. Prof. 95–98 (Chair from 96), Prof. 98–(Chair till 2002); CERN (Geneva) and DESY (Hamburg): Vis. Sci. 2002–03.

Scientific Work: Worked extensively on different aspects of particle phenomenology over the past three decades, authoring about 180 research publications so far. The work regarding hadronic structure of high energy (real and virtual) photons outlined a variety of ways to study it. This work also ha had implications for the design of next generation electron positron colliders, due to the possible large hadronic backgrounds that they can cause. Suggested innovative ways to search for the top quark, Higgs bosons and other new particles and to explore physics beyond the standard model of particle physics at the LHC and ILC. Coauthored a book on supersymmetry and high energy physics.

Important Publications: **(1)** Theory and phenomenology of sparticles: An account of four-dimensional N =1 supersymmetry in high energy physics (2005), World Scientific. **(2)** UA-1 single jet events - a possible signal for top particle (1983) *Phys. Rev. Lett.* **50**, 1539–1541. **(3)** Measuring the parton content of the photon at HERA (1989) *Phys. Rev.* **D39**, 169–178. **(4)** Probing the hadronic structure of the photon at Tristan (1990) *Nucl. Phys.* **B339**, 355–377. **(5)** Minijets and large hadronic background at e^+e^- supercolliders (1991) *Phys. Rev. Lett.* **67**, 189–1192. **(6)** Study of CP Property of the Higgs at a photon collider using $\gamma\,\gamma \rightarrow t\bar{t} \rightarrow lX$ (2003) *Phys. Rev.* **D67**, 095009-1–095009-15, Erratum-ibid. D71: 039902, 2005. **(7)** Determining the CP properties of the Higgs boson (2008) *Phys. Rev. Lett.* **100**, 051801.

Memberships: Fellow: INSA 2003; NASI 2007 • Member: Commission C11 on Particles and Fields of the Intl Union of Pure and Appl. Phys.; Intl Detector Advisory Group for Intl Linear Collider; Scientific Advisory Committee to the Cabinet (SAC-C) • Founder member: India ILC forum; Committee for SERC schools in Theoretical High Energy Physics (Member from 1997, Chair since 2005)

Awards & Distinctions: IASc Assoc. 85–88 • NASI Sheel Memorial Lecture Award • INSA Jawaharlal Nehru Centenary Visiting Fellowship 2005 • INSA Satyendranath Bose Medal 2009 • Asiatic Soc. of Kolkata Meghnad Saha Memorial Gold Medal • IIT Powai Distinguished Alumnus Award • IISc Rustom Choksi Award for Research • DST J C Bose Fellowship • Chair of the Indian Academy Panel for Women in Science • Chief Editor, *Pramana-J. Phys.*

Godwal, Budhiram Kulanand

Elected: 1994
Specialization: High Pressure Physics; Electron States; Dense Plasma Physics
Date and Place of Birth: 8 February 1946; Pauri Garhwal, Uttar Pradesh
Parents: Godwawl Kulanand and Digambaridevi
Spoue and Children: Madhuri; one *s* and two *d*
Address: 28, Creekview Co-operative Housing Society, Plot No. 33, Sector 9A, Vashi,
Navi Mumbai 400 703, India
Tel. (022) 2780 1211 (R)
email: bkgodwal@yahoo.com

Education: Bombay Univ.: BSc 67, MSc 69, PhD 80.

Career: BARC, Bombay: Sci. Offr 71–2007, Head of High Pressure Phys. Dn; Univ. of British Columbia, Canada: Vis. Sci. 87–89; Univ. of California, USA: Vis. Sci. 89–90.

Scientific Work: Has made fundamental contributions in high pressure physics. Theoretical work on shock equation of state of materials and a new model for the difficult intermediate pressure region (50–1000 GPa) are highly cited in the literature. Determination of melting curve of lead to pressures of 100 GPa and temperatures near 4000 K using a laser heated diamond anvil cell is regarded as the standard experiment in this area of research. Work on the use of parallel processing for electronic structure calculations has led to applications in crystals having large number of atoms in the unit cell.

Memberships: Fellow: NASI 2004.

Goel, Parmatma Saran*

Elected: 1977
Specialization: Cosmochemistry; Geochemistry
Date and Place of Birth: 6 July 1930; Dankaur, Bulandhshahr, Uttar Pradesh
Parents: G P Goel and Sharbati Devi
Spouse and Children: Saroj; two *s*, two *d*
Last Address: 117/337, Block `0', Geetanagar, Kanpur 208 025, India
***Deceased:** 9 August 2004

Education: BHU: BSc 52, MSc 54; Carnegie Inst. of Technol., USA: MS 60, PhD 62.

Career: TIFR, Bombay: Res. Asst 54–58; Carnegie Inst. of Technol.: Res. Chemist 58–62; Univ. of California, USA: Vis. Asst Res. Chemist 62–63; IIT Kanpur: Asst Prof. 64–69, Assoc. Prof. 69–72, Prof. 72–88, Head, Chem Dept 72–73, 85–88; IAEA-UNDP Expert Adviser to the Govt of Sri Lanka 78–80.

Scientific Work: Made significant contributions in the field of cosmic ray produced ^{35}S in rain water. Made pioneering contributions to studies of cosmic ray effects in meteorites and made first measurement of ^{14}C in stone and iron-meteorites, contributed to nuclear hydrology by applying trace techniques to water recharge studies in the plains of UP, Haryana and Punjab. Used neutron activation methods to study moon and meteorites at Kanpur. Discovered isotopic anomalies in several elements (Xe, Os and Hg) in meteorites.

Memberships: Member: American Geophysical Union; American Geological Inst.; Geological Soc.; Meteoritical Soc.; American Assn of Advancement of Science.

Goel, Prem Shanker

Elected: 1992
Position: Chmn, RAC, DRDO, New Delhi
Specialization: Satellite Control Systems; Space Technology; Earth Systems
Date and Place of Birth: 20 April 1947; Dhabarsi, Uttar Pradesh
Parents: U S Goel
Spouse and Children: Shobha, one *d*
Address: RAC, Defence Research Development Organisation, Lucknow Road, Timarpur,
New Delhi 110 054, India
Tel. (011) 2381 4279 (O), (011) 2381 2394 (R), Mobile: 99100 49388
email: dr.psgoel@gmail.com

Education: Univ. of Jodhpur: BE Hons 68; IISc, Bangalore: ME 70.

Career: ISSP, Bangalore, Control & Stabilization Group: Head 70–77; APPLE: Project Engineer 77–81; Control Sytems: Head 75–90; SSAB: Chmn and PMB IRS Project: Member 81–88; INSAT-2 A&B: Assoc. Project Dir, New Delhi: 84–92, AOCS: Group Dir 86–92; CMA: Dy Dir 92–96, Assoc. Dir 96–97; ISAC: Dir 97–2005; Ministry of Earth Sci., New Delhi: Secretary and Earth Commission: Chmn 2005–08; RAC DRDO, Delhi: Chmn 2008–.

Scientific Work: Developed concept of remote sensing through spinning satellites and realized the same by spin-axis orientation control Bhaskara-I and Bhaskara-II. Later extended concept through magnetic control in Rohini Satellite RS-D2. Developed 3-axis stabilization technique in experimental communication satellite; an innovative magnetic attitude control technique for nutation control; zero momentum 3-axis attitude control system for IRS including the concept of yaw axis update, safe mode automatic acquisition sequence and auto reaction wheel reconfiguration. Coordinated the indigenization of mono-propellent hydrogen thrusters, dynamically-tuned gyros, reaction wheels and conical earth sensor. Recently, contributed to development of INSAT-2 spacecraft in general and the highly stable attitude control system in particular. Established Ministry of Earth Sciences, combining ocean science & technology, atmosphere science & technology and seismology.

Memberships: Fellow: NASI 89; INSA 98; INAE 90; TWAS; Space Commission, NSAB.

Awards & Distinctions: Special Achievement Award for Aryabhata 75 • Hari Om Ashram Prerit Vikram Sarabhai Res. Award 84 • Padma Shri 2001.

Gogate, Damodar Vinayak*

Elected: 1942
Specialization: Spectroscopy; Statistical Thermodynamics; Heat Transfer
Date of Birth: 23 January 1903
Parents: Vinayak Gogate and Rama
Spouse and Children: Radhabai; two *d*
Last Address: 154, Tilak Path, Rambagh, Indore 452 004, India
***Deceased:** 11 January 1984

Education: Univ. of Lucknow: BSc Hons 25, MSc 26; Univ. of London: PhD 38.

Career: Baroda College and MS Univ. of Baroda, Dept of Phys.: 27–61; Vikram Univ, Ujjain: Head of Observatory 61–65; Meteorological Observatory In-Charge.

Gokhale, Rajesh Sudhir

Elected: 2007
Position: Director, Inst. Genomics and Integrative Biology, Delhi
Specialisation: Chemical Biology; Natural Product Biosynthesis; Metabolic Pathways
Date and Place of Birth: 16 January 1967; Nagpur, Maharashtra
Parents: Sudhir D Gokhale and Saroj
Spouse and Children: Aseema; two *s*
Address: Institute of Genomics and Integrative Biology, CSIR, Delhi University Campus, Mall Road,
Delhi 110 007, India
Tel. (011) 2766 2407, 2766 7298 (O), (011) 27661 7192 (R)
email: rsg@nii.acs.in; rsg@igib.res.in

Education: Delhi Univ.: BSc 88; IIT Bombay: MSc 90; IISc: PhD 90–96.

Career: Stanford Univ.: Postdoc Fellow 96–99; NII: Staff Sci. 99–; IGIB: Dir 2009.

Scientific Work: Research group interested in addressing problems related to metabolic diversity and complexity. In this multidisciplinary programme, engaged at the interface of chemistry, biochemistry, and structural and molecular biology, elucidating the biochemical pathways leading to the assembly of various metabolites. Genome-based approach has revealed several novel proteins and biosynthetic mechanisms, which has suggested subtle ways in which pathogens might have evolved their gene products to generate metabolic diversity. Identified functional as well as mechanistic versatility of polyketide synthase (PKS) proteins in the biosynthesis of complex mycobacterial lipids apart from reconstituting these multi-component enzymatic assembly-line systems, discovered a new family of fatty acyl-AMP ligases (FAALs) that establish 'biochemical crosstalk' between fatty acid synthases (FASs) and PKSs to produce hybrid metabolites. Initiated a programme to dissect the functional significance of PKSs proteins in the biology of *Dictyostelium amoeba*. This cellular slime mould is an excellent model organism for the study of cell and development due to its unique two-stage life cycle and presently investigating whether PKS-derived metabolites play a significant role in *Dictyostelium morphogenesis*. More recently we are investigating into melanin pigmentation in human with specific interest in delineating vitiligo aetiopathogenesis.

Important Publications: **(1)** Mechanistic and functional insights into fatty acid activation in *Mycobacterium tuberculosis* (2009) *Nat. Chem. Biol.* **5**, 3: 166–73. Epub 2009 Feb 1. **(2)** Novel intermolecular iterative mechanism for biosynthesis of mycoketide catalyzed by a bimodular polyketide synthase (2008) *PLoS Biol.* **8**, 6(7): e 163. **(3)** A genetic locus required for iron acquisition in *Mycobacterium tuberculosis* (2006) *Proc. Natl. Acad. Sci. USA* **103**, 7, 2069–2074. **(4)** Dissecting the mechanism and assembly of a complex virulence mycobacterial lipid (2005) *Mol. Cell.* **4**, 17(5), 631–43. **(5)** Enzymic activation and transfer of fatty acids as acyl-adenylates in mycobacteria (2004) *Nature* **25**, 428(6981), 441–5.

Awards & Distinctions: Wellcome Trust Senior Research Fellowship in Biomedical Science 2001 • B M Birla Science Prize 2003 • Swarnajayanti Fellowship 2006 • S S Bhatnagar Prize 2006.

Gopakumar, Rajesh

Elected: 2009
Position: Prof., Harish-Chandra Res. Inst., Allahabad
Specialisation: Theoretical Physics; Primarily Quantum Field Theory; String Theory
Date and Place of Birth: 14 December 1967; Thiruvananthapuram, Kerala
Parent: Govinda Pillai Gopakumar, Jayasree
Spouse and Children: Rukmini Dey; one *s*, (Dhrupad)
Address: Harish-Chandra Research Institute, Chhatnag Road, Jhusi, Allahabad 211 019, India
Tel. (0532) 227 4370 (O), (0532) 256 7732 (R)
email: gopakumar@hri.res.in

Education: IIT Kanpur: MSc 92; Princeton Univ.: PhD 97.

Career: Harvard Univ. and Univ. of California, Santa Barbara: Res. Assoc. 97–98; Harvard Univ.: Res. Assoc. 98–2001; Harish-Chandra Res. Inst., Allahabad: Assoc. Prof. 2001–04, Prof. 2004–; Inst. for Advanced Study, Princeton: Vis. Member 2001–05.

Scientific Work: Thesis work on master field in large *N* Yang–Mills theories; discovery of 'Gopakumar–Vafa' duality; formulation of 'Gopakumar–Vafa' invariants; construction of non-commutative solitons; formulation of NCOS and OM theory; a general approach to deriving/proving gauge-string dualities from perturbative quantum field theory.

Important Publications: **(1)** Mastering the master field (1995) *Nucl. Phys.* **B451,** 379–415. **(2)** On the gauge theory gravity correspondence (1999) *Adv. Theor. Math. Phys.* **5,** 1415. **(3)** Non-commutative solitons (2000) *JHEP* **0005,** 020. **(4)** From free fields to AdS-II (2004) *Phys. Rev.* **D70**, 025010. **(5)** From free fields to AdS-III. (2005) *Phys. Rev.* **D72**, 066008.

Awards & Distinctions: B M Birla Science Prize (Physics) 2004 • ICTP Prize 2006 • Swarnajayanthi Fellowship 2006.

Gopal Krishna

Elected: 1993
Position: Sr Prof., NCRA, Pune
Specialization: Astronomy; Active Galaxies; Observational Cosmology
Date and Place of Birth: 12 March 1948; Khurja, Uttar Pradesh
Parents: Triloki Nath Maheshwari and Rukmani Devi
Spouse and Children: Nira; two *d*
Address: National Centre for Radio Astrophysics (TIFR), Pune University Campus, Pune 411 007, India
Tel. (020) 2571 9240 (O), (020) 2569 8773 (R)
email: krishna@ncra.tifr.res.in

Education: Agra Univ.: BSc 66; Bombay Univ.: PhD 77.

Career: TIFR, Bombay: Res. Assoc. 67–77, Fellow 77–78, Reader 81–88, Assoc. Prof. 88–94, Prof. 94–2003, Sr Prof. 2003–; European Southern Observatory: Sr Vis. Prof. 91 and Space Telescope Sc. Inst., Baltimore: Sr Vis. Prof. 92; Max Planck Inst. for Radioastronomie, Bonn: Vis. Sci. 78–81, Vis. Prof. 93–94.

Scientific Work: Lunar occultation observations with the Ooty radio telescope enabled the first accurate spectral imaging of radio galaxies. Pioneered modelling of the dynamics of radio galaxy jets to explain their cosmological size evolution. Publishing the first samples of gigahertz-peaked-spectrum (GPS) radio sources directly led to the launch of the major class of extragalactic radio sources, called 'gigahertz' peaked spectrum (GPS)-radio sources. Also discovered a new class of radio galaxies, called HYMORS and provided theoretical explanations to the so-called 'linear size paradox' and the 'Lorenz factor paradox' of extragalactic radio sources. Pioneered the investigation of the role of radio galaxies in the cosmic history of star formation, magnetization and metal enrichment in the universe and introduced the much-cited theoretical mechanisms: gravitational superluminal microlensing of quasar jets; equipartition Doppler factor of quasar jets and the excitation of 'relic' radio sources in merging clusters of galaxies.

Memberships: Fellow: NASI 93 • Alexander von Humboldt Foundation 78 • Sr Fellow 2003 • Member: Intl Astronomical Union (IAU); Physical Science Research committee of CSIR 98–2002; S S Bhatnagar Prize Advisory Committee 2000–08; SOC for the UNESCO Inaugural Conference for the International Year of Astronomy 2009.

Awards & Distinctions: S S Bhatnagar Prize 93.

Gopala Rao, Ramavarapu Venu

Elected: 1977
Specialization: Physics and Chemistry of Liquids, Solids and Molecular Acoustics; High Temperature Superconductivity
Date and Place of Birth: 3 December 1927; Vizianagram, Andhra Pradesh
Parents: R Joga Rao and R Manikyambha
Spouse and Children: Jaya Lakshmi; one *s*, two *d*
Address: 46/2 R.T., Saidabad Colony, Hyderabad 500 059, India
Tel. (040) 2407 5651 (R), Mobile: 97010 13672

Education: Andhra Univ.: BSc 48: BHU; MSc 51; California Univ., USA: PhD 57.

Career: Andhra Univ.: Demonstrator 48–49; Agra Univ.: Lecturer 51–53; California Univ., USA: Teaching Asst 53–54, James M Goeway Fellow 54–55, Fellow of Univ. of California 55–56; Pennsylvania State Univ.: Postdoc Res. Fellow 56–57; NCL, Poona: Sci. Offr 58–64; S V Univ., Tirupati: Reader 64–72; Glasgow Univ.: Special Postdoc Res. Fellow 66–67; Jadavpur Univ.: Prof. 72–92, Head 86–88; INSA Sr Sci. 93.

Scientific Work: Developed several equations which are used to compute important physical properties of liquids and to understand the nature of the liquid state in a comprehensive way. Applied square well potential to liquid metals and alloys. Work on fused salts reveals that the structure function can be used as a unified property to evaluate all the properties of the liquids. New equations for the pressure derivatives of elastic constants which in turn are related to third-order elastic constants and acoustic Gruneisen's constants have been derived, as also equations for diffusion coefficient and its pressure derivatives

Important Publications: **(1)** A unified approach in the study of Pd–Pd alloy at different compositions in the computation of structural, thermodynamic, elastic and various other properties (2002) *Indian J. Pure Appl. Math* **40**, 32. **(2)** Formulation of an equation in the computation of first and second Gruneisen constants, its pressure derivative and Anderson–Gruneisen constant (2000) *Indian J. Pure Appl. Math.* **38**, 313. **(3)** Formulation of four constant potential function in the calculation of acoustic and thermodynamic properties of Se Te, (1999) *Indian J. Pure Appl. Math.* **37**, 522. **(4)** Collective excitation and dynamic structure factor of liquid tellurium (2000) *Indian J. Chem.* **A39**, 247. **(5)** Methods of evaluation of Anderson–Gruneisen parameters and other associated properties (1997) *J. Phys. Chem. Solids* **58**, 939.

Memberships: Fellow: INSA 85; Indian Physical Soc.; Indian Chemical Soc.; Indian Soc. of Surface Sci. and Technol.; West Bengal Acad. of Sci. and Technol.

Awards & Distinctions: FICCI Award 88.

Gopalakrishna, Arkalgud*

Elected: 1974
Specialization: Reproductive Physiology; Embryology of Bats
Date and Place of Birth: 20 October 1922; Narasimharajapura, Karnataka
Parents: Sanjeevaiah and Sannamma
Spouse and Children: Venkamma; four *s*, one *d*
Last Address: 39, Vijayanagar, Chaoni, Nagpur 440 013, India
***Deceased:** 20 September 2008

Education: Mysore Univ.: BSc Hons 42, DSc 58.

Career: Mysore Univ.: Lecturer in Zoology 46; College of Science, Nagpur: Lecturer 46–54, 59–62, Prof. 65–67, Res. Prof. 67–69, Dir 69–81; Rockefeller Inst., USA: Vis. Fellow 55–57; Vidarbha Mahavidyalaya, Amaravati: Lecturer 57–59; Govt College, Aurangabad: Prof. 62–65; Nagpur Inst. of Sc.: Prof. 65–69, Dir 59–81; UGC Major Res. Project Leader 81–85; CSIR Emeritus Sci. 85–87; Tufts Univ., Medical and Veterinary School, USA: Vis. Prof. 87.

Scientific Work: After studying the development of foetal membranes and placentation in all Indian and a few foreign families of bats, formulated a new scheme of taxonomy and inter-relationships of bats. Discovered a portal vessel between the ovary and the ipsilateral uterine cornu through which progesterone is directly supplied to the uterine cornu eliciting a localized progestational reaction near the cranial end of the uterine cornu. Extensive banding studies revealed that most colonial species migrate long distances during breeding season and return to the original roost with young ones.

Memberships: Member: American Assn of Anatomists • Fellow: Zoological Soc. of India, Acad. of Zoology • President: Indian Soc. of Life Sciences.

Awards & Distinctions: Maharashtra Govt Award for outstanding service in education and social work 79.

Gopalakrishnan, Jagannatha

Elected: 1988
Position: INSA Sr Sci., IISc, Bangalore
Specialization: Solid State Chemistry; Synthesis and Structure; Chemistry of Oxide Materials
Date and Place of Birth: 18 March 1944; Veliandal, Villupuram, Tamil Nadu
Parents: M Jagannathan and Balasaraswathi
Spouse and Children: G Prema; one *d*
Address: Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2537 (O), (080) 2334 5163 (R)
email: gopal@sscu.iisc.ernet.in

Education: Madras Univ.: BSc 62, MSc 64; IISc, Bangalore: PhD 68.

Career: IIT Madras, Dept of Chem.: Assoc. Lecturer, Lecturer 69–77; Tech. Univ., Germany, Alexander von Humboldt Foundation: Sr Fellow 74–75; IISc, Bangalore, Solid State and Structural Chem. Unit: Asst Prof. 77–82, Assoc. Prof. 82–87; Prof. 87–2007; INSA Sr Sci. 2008–; E I Du Point, USA: Vis. Sci. 87–89. Univ. Maryland, USA: Vis. Prof. 99–2000.

Scientific Work: Research interests are directed to synthesis of novel inorganic solids, especially oxide materials. Synthesized several layered phosphate oxides exhibiting Bronsted acidity, transition metal phosphates of NASICON, $KTiOPO_4$ and related structures, exhibiting redox inter and optical nonlinearity and layered and three-dimensional oxides in the H–V–W–O system possessing $WO_3 \cdot 2H_2O$ and hexagonal WO_3 type structures. In recent years, developed metathesis as a convenient strategy to synthesize a variety of known and new layered and three-dimensional perovskite and related oxides, that include cuprotitanates, hybrid Ruddlesden–Popper/Aurivillius phases. Also designed and synthesized novel functional materials that include lithium-ion conductors, nonlinear optical materials, layered Bronsted acids, ferromagnetic and relaxor ferroelectric oxide materials.

Important Publications: **(1)** *New directions in solid state chemistry* (1986) (1997) Cambridge University Press, UK **(2)** Chimie douce approaches to the synthesis of metastable oxide materials (1995) *Chem. Mater.* **7**, 1265. **(3)** Solid state chemistry of early transition metal oxides containing d(0) and d(1) cations (1997) *J. Mater. Chem.* **7**, 2297. **(4)** Transformations of Ruddlesden–Popper oxides to new layered perovskite oxides by metathesis reactions (2000) *J. Am. Chem. Soc.* **122**, 6237. **(5)** Bridging the Ruddlesden–Popper and the Aurivillius phases: Synthesis and structure of a novel series of layered perovskite oxides, $(BiO)LnTiO_4$ (Ln = La, Nd, Sm) (2001) *J. Am. Chem. Soc.* **123**, 11496. **(6)** Slicing the perovskite structure into layers: Synthesis of novel three-dimensional and layered perovskite oxides, $ALaSrNb_2M(II)O_9$ (A = Na, Cs) (1995) *J. Am. Chem. Soc.* (Communication), **117**, 2353.

Memberships: Fellow: INSA 94; NASI 2001.

Awards & Distinctions: MRSI Prize for Superconductivity Research • FICCI Award • Choksi Award • A V Rama Rao Prize • CRSI Silver Medal.

Gopalan, Coluthur

Elected: 1964
Specialization: Nutrition; Medical Research
Date and Place of Birth: 29 November 1918; Salem Town, Tamil Nadu
Address: 39 (New No. 70), Landons Road, Kilpauk, Chennai 600 010
Tel. (011) 42858842 (R)

Education: Univ. of Madras: MBBS, MD; London Univ., UK: PhD, DSc, FRCP.

Career: Medical Res. Council, UK: Nuffield Foundation Fellow 46–49; Rockefeller Foundation Fellow 53–54; Natl Inst. of Nutrition, Hyderbad: Dir 60–74; Indian Council of Medical Res., New Delhi: Dir General 74–79.

Scientific Work: Spearheaded the campaign against undernutrition (and consequent ill-health) in India for nearly four decades. Contribution towards the cause of betterment of nutritional status of poor population groups in India have benefitted India and other developing countries and helped to strengthen and inspire movements for the eradication of undernutrition among poor population in many developing countries. Built and nurtured with rare dedication the National Institute of Nutrition in India. Responsible for major efforts towards forging a fraternity of Asian nutrition scientists who could talk directly to each other (instead of via London, Amsterdam or Washington). Initiated the series of Asian Congress of Nutrition starting from 1970 and this served to raise Asian representation in international nutrition science circles. Promoted medical research on burning problems of South Asian countries and initiated to build a grid of medical research institutions in these countries which could address common health problems. Gave a new orientation to medical research in the country ensuring adequate emphasis on the problems of communicable diseases and those related to poverty and undernutrition.

Important Publications: **(1)** Antidiuretic Factor in the urine of patients with Nutritional Oedema (1950) *Lancet* **I**, 304–306. **(2)** Body composition in nutritional edema (1953) *Metabolism* **2**, 335–343. **(3)** Possible role of dietary leucine in the pathogenesis of pellagra (1969) *Lancet* **I**, 197–199. **(4)** The role of leucine in the pathogenesis of canine black tongue and pellagra (1969) *Lancet* **II**, 956–957. **(5)** The changing epidemiology of malnutrition in a developing society - the effect of unforeseen factors (1999) *Curr. Sci.* **77**, 10, 1257–1262.

Memberships: Fellow: R. Soc. of London 87 • Member: WHO Global Advisory Committee on Medical Res.; Review Committee of Kasturba Medical College • President: First Asian Congress of Nutrition; Intl Union of Nutrition Sciences.

Awards & Distinctions: ICMR Basant Devi Amir Chand Prize 54, 60 • Amrut Mody Res. Award 72 • B C Roy Natl Award 74 • Ambhuj Nath Bose Prize of Royal College of Physicians 76 • Dhanvanthri Award 78 • FICCI Award 78 • WHO Health-for-all Award 88 • Intl Union of Nutrition Sciences Award 89 • INSA C V Raman Gold Medal 88 • R D Birla Award 90.

Gopalan, Kunchithapadam

Elected: 1983
Position: INSA Hon Sci., NGRI, Hyderabad
Specialisation: Geo- and Cosmo- Chronology; Isotope Geology; Mass Spectrometry
Date and Place of Birth: 12 August 1938; Tanjavur, Tamil Nadu
Parents: R Kunchithapadam and Pattammal
Spouse and Children: Savithri; one *s* (Ramesh)
Address: National Geophysical Research Institute, Uppal Road, Hyderabad 500 007, India
Tel. (040) 2343 4665 (O), (040) 2720 4108 (R)
email: gopalank1@rediffmail.com, kgopalan@ngri.res.in

Education: Madras Univ.: BSc Hons 59; Andhra Univ.: MSc 60; IISc, Bangalore: PhD 66.

Career: Univ. of California: Postdoc Res. 66–70; TIFR, Bombay: Fellow 70–73; PRL, Ahmedabad: Prof. 74–87; NGRI, Hyderabad: Dy Dir 87–95; Dir Grade Sci. 95–98; CSIR Emer. Sc. 98–2003 and INSA Sr Sci. 2003–2008, INSA Hon. Sci. 2008–.

Scientific Work: Worked out primary chronologies of the solar system based on Rb–Sr dating of primitive meteorites; chronology of volcanic rock formation on the moon based on Rb–Sr and U–Pb dating of Apollo moon samples; precambrian chronology of Rajasthan and South India based on dating of igneous, metamorphic and sedimentary lithologies; and high resolution reconstruction of climate variation based on the hydrogen, oxygen and carbon isotopic compositions of annual rings of coniferous trees from Kashmir.

Important Publications: **(1)** Rb–Sr age of hypersthene chondrites (1968) *J. Geophys. Res.* **73**, 7133. **(2)** Rb–Sr, U–Pb dating of lunar material (1970) *Science* **167**, 471. **(3)** A Kerguelen hotspot source for the Rajmahal traps and Ninetyeast Ridge (1983) *Nature* **303**, 385. **(4)** Dendroclimatological implications of stable isotope coherence in trees, (1985) *Nature* **317**, 802. **(5)** Did Deccan volcanism predate the *K/T* transition? (1993) *Earth Planet. Sci. Lett.* **119**, 181.

Memberships: Member: American Geophysical Union • Fellow: INSA 86, NASI 92; Indian Geophysical Union 87; Assn of Exploration Geophysicists 98; Geological Soc. India 89.

Awards & Distinctions: S S Bhatnagar Prize 82 • M S Krishnan Gold Medal 82 • Medal of Honour, Indian Soc. for Mass Spectrometry 91.

Gopal-Ayengar, Anekal Ramaswamiengar*

Elected: 1952, 1965
Specialization: Cytology; Cytochemistry; Radiobiology; Cancer Research
Date and Place of Birth: 1 January 1909; Vanavasi, Salem, Tamil Nadu
Spouse: Rajalakshmi; one s (Ram Gopal)
Last Address: 73, Mysore Colony, Mahul Road, Chembur, Bombay 400 074, India
***Deceased:** 8 September 1992

Education: Univ. of Mysore: BSc Hons 29, MSc 33; Univ. of Toronto: MA 41, PhD 42.

Career: Univ. of Mysore, Dept of Botany: Lecturer 33–38; Univ. of Toronto: Vincent Massey Fellow 38–39, Res. Fellow 39–41, Sr Instructor Res. Assoc. 41–45; Univ. of Washington, Barnard Skin and Cancer Hospital: Kettering Res. Fellow 45–47; Tata Memorial Hospital, Bombay: Chief Res. Cytologist 47–51, Head, AEC Unit on Cell Biology 48–51; Chester Beatty Res. Inst., London: Sr Res. Fellow 51–53; Atomic Energy Establishment, Bombay: Asst Dir 52–54, Dy Chief Sci. Offr 55–59, Chief Sci. Offr and Head of Biology and Med. Dn 60–61, Dir of Biology Group 62–69, Adviser 71–75; Univ. of Hannover: Guest Prof. of Biophys. 76–82.

Scientific Work: Made outstanding contributions in the basic and applied aspects of radiobiology, radiation biophysics, cytochemistry, mutation research, cancer research, risk perception and evaluation, and human health. One of the pioneers in isolating DNA from mouse chromosomes. Made outstanding contributions on molecular organization and the fine structure of chromosomes, and the cytological and cytochemical effects of radiations and radiomimetic substances on proliferating cells. Pioneered investigations on radioactivity chromosomal aberrations and genetic effects on plants growing in high background radiation areas of the Kerala Coast. With the commissioning of the Apsara reactor, extensively investigated the biological effects of neutrons and the use of neutron irradiation in agriculture and in applied genetics. Visualized the mutagenic potential of neutrons in enhancing the genetic variability in crop plants and its use in developing more productive varieties of crop plants. Pioneered studies on radiation sensitization of cells and enhancement of radiation lethality by such chemicals which are now finding applications in radiation therapy.

Important Publications: **(1)** Molecular organization in giant chromosomes (1952) *Nature* Vol. 169; **(2)** Molecular orientation and chromosome breakage (1953) *Heredity* Vol. 6.

Memberships: Fellow: INSA 68; Int. Soc. of Cell Biol.; Am. Soc. of Cancer Res.

Awards & Distinctions: Padma Shri 67 • Toronto Univ. Elizabeth Ann Wintercorby Award 41 • H J Bhabha Outstanding Sci. 48 • President: Radiation Commission of IUPAP.

Gopinath, Gomathy

Elected: 1992
Specialisation: Developmental Neurobiology; Neural Plasticity; Neural Transplantation
Date and Place of Birth: 24 January 1940; Mavelikara, Kerala
Parents: Narayanan Kutty and Kutty Amma
Spouse and Children: P G Gopinathan Nair; one *s*, one *d* (Sreekumar, Sreelekha)
Address: Flat No. 1, 122/2, Kanchanjunga Apartments, C V Raman Nagar, Nagavarapalya,
Bangalore 560 093, India
Tel. (080) 2524 7584 (R), Mobile: 98453 38134
email: gomathy.gopinath@gmail.com, gomathyg@hotmail.com

Education: Univ. of Kerala: BSc 58; AIIMS, New Delhi: MBBS 63, MS (Anatomy) 67.

Career: AIIMS, New Delhi: Tutor 67–68, Lecturer 68–71, Asst Prof. 71–79, Assoc. Prof. 79–88, Prof. 88–98. Dept of Anatomy, Head 92–98.

Scientific Work: Structural details of some of the areas of the developing brain in experimental animals and humans were studied and reported. Changes in the developing brain produced by insults such as undernutrition, raised intracaranil pressure and low levels of irradiation during the critical period of brain development, could be reversed to a large extent on removal of the insults and rehabilitation before the close of the critical period, proving that plasticity at this period is active enough to overcome early insults. Also demonstrated ageing changes in neurons and the probable genesis of ageing pigments from some of the neuronal components. Contributed significantly towards establishing neural transplantation experiments at AIIMS and other centres in India. Neuronal ageing and degeneration were demonstrated in neural transplants of different duration in the host brains of different age groups for the first time. This has significant relevance to the therapeutic application of transplant in neurodegenerative diseases in man. Trained neuroscientists in this speciality and also in neuromorphometry and stereology.

Important Publications: **(1)** Cell surface molecules (NCAM & L1) in intrastriatal transplants of embryonic mesencephalon in rats (1996) *Neuroscience* **14**, 453–460. **(2)** *Neuroscience* (1991) **40**, 429–443. **(3)** Effect of internal irradiation on the maturing Purkinje cells in rat (1987) *J. Neurol. Sci.* **78**, 93–103. **(4)** Ultrastructural observations in experimental hydrocephalus in rabbits (1979) *J. Neurol. Sci.* **43**, 333–344. **(5)** Mitochondrial genesis of the lipfuscin pigment in the rat mesencephalic nucleus of 5th nerve in the aged rat (1974) *Acta Anatomica* **90**, 14–20.

Memberships: Member: Intl Brain Res. Org.; Intl Soc. of Stereology; Intl Soc. of Developmental Neuroscience; Anatomical Soc. of India; Indian Acad. of Neuroscience • Fellow: NAMS; NASI 90.

Gopinathan, Karumathil Puthanveetil

Elected: 1987
Specialization: Molecular Biology; Recombinant DNA and Genetic Engineering; Molecular Virology; Biotechnology and Developmental Biology
Date and Place of Birth: 13 June 1939; Ponani, Kerala
Parents: K P K Menon and K P Devaki Amma
Spouse and Children: Lakshmi; one *s*, one *d* (Ashok, Preethi)
Address: Abhiman, 369, 11th Cross, RT Nagar II Block, Bangalore 560 032, India
Tel. (080) 2360 0090 (O), (080) 2333 3861 (R), Mobile: 97314 40030
email: kpg@mcbl.iisc.ernet.in

Education: Univ. of Kerala: MSc 60; IISc, Bangalore: PhD 65.

Career: IISc, Bangalore, Microbiol. and Cell Biol. Dept: Prof. and Chmn; Centre for Genetic Engg: Founder Chmn 88–90.

Scientific Work: Initiated recombinant DNA research, and thereby emphasis of the lab was switched to study the more complex problem of enkaryotic gene regulation. Used silkworm *Bombyx mori* as a model system for studying tissue-specific and stage-specific gene expression. Using the cloned fibroin gene, established the presence of cis-acting regulatory elements in the flanking sequences and specific trans-acting protein factors capable of interacting with such elements. Regulation of expression of tRNA Gly genes, a multigene family by RNA pol III and the discovery of both positive and negative regulatory elements and the conserved TATA box sequences in the flanking regions of these genes in addition to the internal control elements are major contributions. Exploitation of mulberry silkworm as a natural bioreactor for the expression of cloned foreign genes and further extrapolation of the system to develop a eukaryotic cell surface display system for the high level expression and cell surface display of the expressed recombinant proteins and antigens. Demonstrated the canonical *wnt* signalling pathway in the developmental patterning of the silk glands in silkworms.

Important Publications: **(1)** Regulation of glycyl tRNA gene expression in the posterior silk glands of the silkworm, *Bombyx mori* (1992) *Proc. Natl. Acad. Sci.* (*USA*) **89**, 1070–1074. **(2)** Baculovirus mediated high level expression of luciferase in silkworm cells and larvae (1995) *BioTechniques* **19**, 97–104. **(3)** Differential expreession of individual gene copies from within a tRNA multigene family (2001) *Insect Mol. Biol.* **10**, 523–530. **(4)** Spatio-temporal expression of Wnt 1 during embryonic-, wing-, and silk gland development in *Bombyx mori* (2003) *Gene Expression Patterns* **3**, 559–570. **(5)** BmNPV based surface display system for recombinant proteins (2003) *J. Gen. Virol.* **84**, 2023–2031.

Memberships: Fellow: INSA 93; NASI 2004.

Awards & Distinctions: J C Bose Award in Life Sciences, UGC 92 • IISc Alumni Assn Award for Excellence in Science 95 • S P Ray Chaudhuri Endowment Lecture, Indian Soc. for Cell Biology 97 • INSA M R Das Memorial Award Lecture 2005 • Excellence in Biotechnology Life Time Achievement Award, Indian Soc. for Biotechnology 2007 • Distinguished Alumni Award, IISc 2009.

Gopinathan, Melethil Sankaran

Elected: 1988
Position: Prof., IISER, Thiruvananthapuram
Specialization: Quantum Chemistry; Non-linear Dynamics in Chemistry and Biology
Date and Place of Birth: 8 October 1942; Elanthur, Kerala
Parents: K Sankaran and K Janakey
Spouse and Children: Kamala; one *s* (Ajay)
Address: Indian Institute of Science Education and Research, Thiruvananthapuram 695 016, India
Tel. (0471) 259 7428 (O), (0471) 236 5743 (R), Mobile: 98952 70289
email: msgopinathan@gmail.com

Education: Kerala Univ.: BSc 63, MSc 65; IIT Kanpur: PhD 72.

Career: Oxford Univ., UK: R. Soc. Bursar 73–74; McGill Univ., UK: NRC Postdoc Fellow 74–77; IIT Madras: Asst Prof. 77–86, Prof. 86–2005; Emeritus Prof. 2005–08; IISER Thiruvananthapuram: Prof. 2008–; Univ. of Hannover, Germany: Alexander von Humboldt Fellow 80, 83, 91.

Scientific Work: Developed an *ab initio* local density method for atomic and molecular quantum mechanical calculations. Method incorporates electronic correlation and relativistic effects in a transparent way. Developed quantum mechanical concept of chemical valency and introduced the concept of valency of molecular orbitals which has been applied to the study of molecular structure and chemical reactivity. The dynamic of nonlinear systems like human heart and brain have been analysed for normal and pathological cases to decipher their dynamical characteristics. Such experimental and theoretical studies have been extended to coupled chemical oscillators and to systems biology, especially cell division cycle.

Important Publications: **(1)** Concentration of CO_2 over melting ice oscillates (2004) *Phys. Rev. Lett.* **93**, 4. **(2)** Unstable periodic orbits in human cardiac rhythm (1998) *Phys. Rev.* **E57**, 4594. **(3)** Valency correlation diagrams (1988) *J. Am. Chem. Soc.* **110**, 96. **(4)** Improved approximate representation of the Hartree–Fock potential in atoms (1977) *Phys. Rev.* **A15**, 2135 **(5)** The Fermi hole and the exchange parameter in $X\alpha$ theory (1976) *Phys. Rev.* **A14**, 1.

Memberships: Fellow: INSA 92; Sigma Chi of North America.

Awards & Distinctions: Bursary of the Royal Society, London • Research Fellowship of NRC, Canada • Alexander von Humboldt Fellowship, Germany • Linus Pauling Lecture Award, MG University, Kerala.

Gore, Anil Purushottam

Elected: 1997
Specialization: Non-parametric Inference and Statistical Ecology
Date and Place of Birth: 10 August 1947; Wai, Maharashtra
Parents: Gore Purushottam Sadashiv and Lalita
Spouse and Children: Veena; one *d*
Address: Bakul, 40, Empress Garden Society, Sopan Baug, Pune 411 001, India
Mobile: 94235 33339
email: gore_anil@yahoo.com

Education: Bombay Univ.: BSc 66; Pune Univ.: MSc 68; Univ. of Kentucky: PhD 72.

Career: Sc. Univ., Penang, Malaysia: Lecturer 72–75; Univ. of Bombay: Reader 75–76; Maharashtra Assn for Cultivation of Sc.: Sci. 76–79; Univ. of Pune: Reader, Prof. 79–94; Prof. 95–2007; Cytel Software and Services Pvt. Ltd Pune: Vice-President.

Scientific Work: Promoting biostatistics research in general and interaction between statisticians and ecologists in particular.

Important Publications: **(1)** *Statistical analysis of non-normal data*, Wiley Eastern. **(2)** *A course in mathematical and statistical ecology*, Kluwer.

Memberships: Fellow: Maharashtra Acad. of Sci.; National Inst. of Ecology • Elected Member: Intl Statistics Inst.

Awards & Distinctions: Distinguished Statistical Ecologist (INTECOL) • First Bose–Nandi Award, Calcutta Statistical Assn for the best paper in applied statistics • Distinguished Alumnus, The Hague, Univ. of Kentucky.

Goswami, Bhupendra Nath

Elected: 1996
Position: Prof. Dir, IITM, Pune
Specialization: Tropical Meteorology; Monsoon Dynamics; Predictability of Weather and Climate; Air–Sea Interactions
Date and Place of Birth: 1 August 1950; Kamrup, Assam
Parents: Ramanath Dev Goswami and Giribala
Spouse and Children: Bandana; one *s*, one *d* (Bikiran, Litika)
Address: Indian Institute of Tropical Meteorology, Homi Bhabha Road, Pune 411 008, India
Tel. (020) 2589 3924 (O), (020) 2588 5171 (R)
email: goswami@tropmet.res.in; URL: http://www.tropmet.res.in/~bng/index.html

Education: Gauhati Univ.: BSc 69, MSc 71; Gujarat Univ.: PhD 76.

Career: PRL: Res. Scholar 71–76, Vis. Sci. 76–78; Massachussetts Inst. Tech., USA: Res Asst 78–80; NASA, USA: NRC Assoc./USRA Sci. 80–83; IIT Delhi: SSO 83–85; IISc: Asst Prof. 85–92, Assoc. Prof. 92–98, Prof. 98–2006; Ind. Inst. Trop. Meterol: Dir 2006–.

Scientific Work: Unravelled physical mechanism of scale selection of monsoon biweekly oscillation as well as 30–60 day oscillation. First estimate potential predictability of tropical climate was made. Discovered Indian Ocean dipole mode (IOD), a new mode of climate variability involving ocean–atmosphere interactions. Unravelled mechanism for internal inter-annual variability limiting the predictability of the Indian summer monsoon. Developed successful real time prediction scheme for active and break phases of monsoon. Identified increasing trend of extreme rain events and decreasing trend of weak rain events over central India.

Important Publications: **(1)** Increasing trend of extreme rain events over India in a warming environment (2006) *Science* **314**, 5804, 1442–1445. **(2)** A dipole mode in the tropical Indian Ocean (1999) *Nature* **401**, 360–363. **(3)** A broad scale circulation index for interannual variability of the Indian summer monsoon (1999) *Q. J. R. Meteorol. Soc.* **125**, 611–633. **(4)** Indian monsoon-ENSO relationship on interdecadal time scales (2000) *J. Climate.* **(5)** Predictability of a coupled ocean atmosphere model (1991) *J. Climate* **4**, 3–22.

Memberships: American Meteorological Soc. • Fellow: NASI 2000; INSA 2003.

Awards & Distinctions: Vikram Sarabhai Award in Space Science 94 • S S Bhatnagar Award 95 • B N Desai Award 98 • INSA K R Ramanathan Medal 2008.

Goswami, Jitendra Nath

Elected: 1992
Position: Dir, PRL, Ahmedabad
Specialization: Solar System Studies; Pre-Solar (Stellar) Processes; Geochronology
Date and Place of Birth: 18 November 1950; Jorhat, Assam
Parents: Sreenath Goswami and Punyeswari
Spouse and Children: Nandita; two s
Address: Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2630 8550, 2631 4855 (O), (079) 2630 1527 (R)
email: goswami@prl.res.in; URL: www.prl.res.in

Education: Gauhati Univ.: BSc Hons 68, MSc 70; Gujarat Univ.: PhD 78.

Career: TIFR, Bombay: Vis. Member 70–73; PRL, Ahmedabad: Res. Assoc. 73–80, Fellow 80–86, Assoc. Prof. 87–94, Prof. 95–2000; Sr Prof. 2000–05, Dir 2005–; Univ. of California, Berkeley: Post Graduate Res. Physicist 75–76, San Diego: Vis. Res. Sci. 79–80; Washington Univ., St. Louis: Vis. Sci. 82, 84, 86; Lunar & Planetary Inst., Houston: Vis. Sci. 97, 99; Max-Planck Inst., Mainz: Vis. Sci. 2000, 2003–04; Indian Cosmic Ray Experiment in Spacelab-3: Co-investigator 85; Principal Investigator of NASA approved Lunar Sample Programme; Chandrayaan-1 Mission: Principal Sci. 2004.

Scientific Work: Contributed significantly to the science plans of India's first planetary mission, *Chandrayaan*-1. Identified the presence of short-lived nuclide Ca-41 in early solar system solids and established a stellar origin for this and several other short-lived nuclides that bolstered the proposal for a supernova triggered origin for the solar system. Established Al-26 as the primary heat source for melting of planetesimals in the early solar system. Using a novel approach, provided evidence for an active early sun from studies of meteorites. Cosmic ray experiment conducted on *Spacelab-3* mission established interstellar neutrals as the source of the anomalous cosmic rays. Developed methods for determining ages of single zircon grains using a small geometry ion microprobe and delineated the early evolutionary history of the prominent archean cratons in the Indian shield. Studies of cosmic ray records in lunar samples and meteorites led to first observation of enrichment of trans-iron group of heavy nuclei in ancient solar flares and delineation of time scales and processes governing lunar regolith dynamics.

Important Publications: **(1)** Ca-41 in the early solar system (1994) *Astrophys. J. Lett.* **431**, L67–70. **(2)** A stellar origin for the short-lived nuclides in the early solar system (1998) *Nature* **391**, 559–561. **(3)** ^{26}Al in eucrite Piplia Kalan: Plausible heat source and formation chronology (1999) *Science* **284**, 1348–1350. **(4)** Short-lived nuclides in hibonite grains from Murchison: Evidence for solar system evolution (2002) *Science* **298**, 2182–2185. **(5)** Ionization states of the low energy cosmic rays: Results from Spacelab 3 cosmic ray experiment (1993) *Astrophys. J.* **411**, 418–430. **(6)** High precision ^{207}Pb/ ^{206}Pb zircon geochronology using a small ion microprobe (1994) *Geochim. Cosmochim. Acta* **58**, 2135--2141. **(7)** Evidence in meteorites for an active early sun (1987) *Astrophys. J. Lett.* **313**, L31 35.

Memberships: Fellow: NASI 95; INSA 2000; TWAS; Indian Physics Assn; Astronomical Soc. of India; Intl Astronomical Union; Intl Acad. of Astronautics; GS; EAG; RAS.

Awards & Distinctions: IASc Assoc. 84–87 • INSA Young Scientist Medal 78 • NASA Public Service Group Achievement Award 86 • S S Bhatnagar Award 94 • Kamal Kumari Award in Science and Technology 2003.

Goswami, Ravinder

Elected: 2008
Position: Assoc. Prof., IIMS, New Delhi
Specialization: Autoimmune Endocrine Disorders; Sporadic Idiopathic Hypoparathyroidism; Metabolic Bone Disorders in India
Date and Place of Birth: 3 September 1963; Delhi
Parents: N G Goswami and Shyama
Spouse and Children: Deepti; one *s*, one *d*
Address: Department of Endocrinology & Metabolism, All India Institute of Medical Sciences,
Ansari Nagar, New Delhi 110 029, India
Tel. (011) 2659 4272 (O), (011) 2658 9837 (R), Mobile: 98181 30879
email: gosravinder@hotmail.com

Education: Maulana Azad Medical College, New Delhi: MBBS 85, MD 89; AIIMS: DM 93.

Career: Maulana Azad Medical College, New Delhi: Sr Resident 89–91; AIIMS, New Delhi: Sr Resident 91–95, Sr Res. Assoc. 95–98, Asst Prof. 98–2003, Assoc. Prof. 2003–.

Scientific Work: Carried out significant clinical research in the area of vitamin D deficiency and other hypocalcemic endocrine diseases in India. Demonstrated for the first time, widespread deficiency of vitamin D in India despite abundant sunshine, challenging the well-established classical view on the relationship between sunshine and vitamin D. Ongoing work focusses on investigating the causes, physiological effects and bioadaptation to deficiency of vitamin D and other hypocalcemic disorders and most of the results are published including data showing an effective and easy to follow vitamin D supplementation schedule in India. As a part of this, also studied the prevalence and predisposition to osteomalacia and rickets among females in Delhi and examined its causes. Has done in-depth studies in another common hypocalcemic disorder called idiopathic hypoparathyroidism. Identified new clinical symptoms and signs of the disease and has studied the pathogenesis of this disease at the molecular level as seen in our country. These novel studies have applied importance and are of immediate relevance from the public health point of view in our country.

Important Publications: **(1)** Pattern of 25-hydroxy vitamin D response at short (2 month) and long (1 year) interval after 8 weeks of oral supplementation with cholecalciferol in Asian Indians with chronic hypovitaminosis D (2008) *Br. J. Nutr.* **100**, 3, 526–529. **(2)** Presence of spondyloarthropathy and its clinical profile in patients with hypoparathyroidism (2008) *Clin. Endocrinol.* (*Oxford*) **68**, 2, 258–263. **(3)** Prevalence of thyroid autoimmunity in sporadic idiopathic hypoparathyroidism in comparison to type 1 diabetes and premature ovarian failure (2006) *J. Clin. Endocrinol. Metab.* **91**, 11, 4256–4259. **(4)** Parathyroid hormone gene polymorphism and sporadic idiopathic hypoparathyroidism (2004) *J. Clin. Endocrinol. Metab.* **89**, 10, 4840–4845. **(5)** Prevalence of calcium sensing receptor autoantibodies in patients with sporadic idiopathic hypoparathyroidism (2004) *Eur. J. Endocrinol.* **150,** 1, 9–18.

Awards & Distinctions: Mohan Lal Wig Medal, AIIMS • Shakuntala Amir Chand Prize, ICMR 2001 • S S Bhatnagar Award 2008.

Goswami, Sreebrata

Elected: 2004
Position: Prof, IASc, Kolkata
Specialization: Inorganic Chemistry; Chemical Reactions with Metal Mediation; Functional Materials
Date and Place of Birth: 7 March 1956; Kolkata, West Bengal
Parents: Bhabatosh Goswami and Jayanti Rani
Spouse and Children: Aparna; one *s* (Sreetosh)
Address: Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 4971/356 (O), (033) 2541 6361 (R)
email: icsg@iacs.res.in

Education: Jadavpur Univ.: BSc 75, MSc 77, PhD 83.

Career: NE Hill Univ.: Lecturer 85–90, Sr Lecturer 90–94; IACS: Sr Lecturer 94–99, Reader 99–2005; Prof. 2005–.

Scientific Work: Research covers all aspects of preparation, structural characterization and physical properties of complexes based on transition-metal. The first link is to make new ligands especially polydentate terminal as well as bridging ones. The objective is to bind metal ions into coordination and organometallic compounds and to study their properties. Primarily seeks for situations where the ligands are not stand-alone type but are actually generated from the reactions of precursors with the metal ions. Also looks for unusual chemical and photochemical transformations of organic substrates by the systems prepared. These are intimately linked with the other activities like the use of the compounds in catalytic redox reaction, C–H activation and in photoredox processes. Some of the systems synthesized have shown tremendous prospects as potential optical, catalytic and bio materials. Research is interdisciplinary and covers many areas of inorganic, organic, physical and material chemistry.

Important Publications: **(1)** Oxidative ortho-C–N fusion of aniline by OsO_4. Isolation, characterization of oxo-amido osmium(VI) complexes, and their catalytic activities for oxidative C–C bond cleavage of unsaturated hydrocarbons (2008) *Inorg. Chem.* **47**, 11062–11070. **(2)** Mild synthesis of a family of planar triazinium cations via proton-assisted cyclization of pyridyl containing azo compounds and studies on DNA intercalation (2008) *J. Am. Chem. Soc.* **130**, 5185–5193. **(3)** Singlet diradical complexes of chromium, molybdenum, and tungsten with azo anion radical ligands from $M(CO)_6$ precursors (2007) *Inorg. Chem.* **46**, 8584–8593. **(4)** Mononuclear to polynuclear transition induced by ligand coordination: Synthesis, X-ray structure, and properties of mono-, di- and polynuclear copper(II) complexes of pyridyl-containing azo ligands (2006) *Chem. Inorg. Chem.* **45**, 562–570. **(5)** Transition metal promoted oxidative C–N fusion reactions of aromatic amines and their coordination chemistry (2003) *Com. Inorg. Chem.* **24**, 137–163.

Awards & Distinctions: Career Award, UGC 94 • CRSI Bronze Medal 2002.

Govil, Girjesh

Elected: 1978
Position: INSA Golden Jubliee Res Prof., TIFR, Mumbai
Specialization: Molecular Biophysics
Date and Place of Birth: 25 September 1940; Khurja, Uttar Pradesh
Parents: Mangal Sen Govil and Dharam Devi
Spouse and Children: Anuradha; one *s*, two *d*
Address: 302, Vigyan Shila, Juhu-Versova Link Road, 7 Bungalows, Mumbai 400 061, India
Tel. (022) 2278 2371 (O), (022) 2630 1816 (R)
email: govil@tifr.res.in

Education: Lucknow Univ.: BSc 56; Allahabad Univ.: MSc 58; Bombay Univ.: PhD 63.

Career: NPL, England & NRC, Canada: Postdoc Res. 66 & 68; NPL, England: Res. Fellow 65–68; BARC, Mumbai: Sci. Offr 59–61; TIFR, Mumbai: Res. Fellow 61–65; Fellow 68–71; Reader 71–75; Assoc. Prof. 75–84; Prof. 84–91; Sr. Prof. 91–2003; Raja Ramanna Fellow 2003–09; INSA Golden Jubliee Research Professor 2009–; Summer Prof. 72; Nat. Res. Council of Canada: Vis Assoc. 75–77; NIH, USA: Vis. Sci. 79–82, 87.

Scientific Work: Research activities span interface of physics, chemistry and biology. Thrust of research has been on biomolecular interaction and recognition using magnetic resonance and theoretical calculations. Has investigated certain aspects of molecular interactions at the cellular level. Initiated a programme in India in the new and emerging area of molecular electronics.

Memberships: Fellow: IASc 78; NASI 81; INSA 83; TWAS 98

Awards & Distinctions: S S Bhatnagar Prize 78 • Life time achievement awards of Indian Sci. Congress and Indian Chemical Soc. • INSA 4th Jawaharlal Vis. Fellowship 94 • Goyal Prize • R K Asundi Memorial Lecture Award • The first G N Ramachandran Award of IUPAB.

Govinda Rao, Naladurga Srinivasarao*

Elected: 1952
Specialization: Hydraulics; Hydropower Development; Irrigation Engineering
Date and Place of Birth: 6 February 1907; Mysore, Karnataka
Parents: N K Srinivasa Rao and Radha Bai
Spouse and Children: N S Saroja Bai; two *s*, seven *d*
Last Address: 103, K T Apartments, 89, Diagonal Road, Visveshwarapuram, Bangalore 560 004, India
***Deceased:** 22 December 1995

Education: Mysore Univ.: BE 28; Inst. of Civil Engineers, London: AMICE.

Career: Asst Engineer in Orissa 29, Mysore 30–32, Bangalore 32–36, 42–44; Mysore Univ. Polytechnic: Lecturer 40–42; Karnataka Engineering Res. Station: Asst Dir 44–50; IISc, Bangalore, Civil Engg Dept: Dean and Head 50–67; CBIP: Adviser 67–71.

Scientific Work: Helped design the world's biggest siphons after model research. Compounded a new theory of cavitation damage and a criteria for accurate determination of cavitation inception. Designed a new type of cavitation tunnel; a new type of current meter for measuring river discharges and marine currents. Submerged hydraulic jump; dissipation of energy of high velocity flows; flow in branch channels; scour turbulence, inception of air entrainment in high velocity flows; measurement of flow through new types of weirs, notches, orifices, etc. are all significant contributions. Involved in the construction of Krishnarajasagar Dam, Visweswaraya Canal and the Markandeya Dam. Surveyed the site for construction of Hemavathi Dam.

Important Publications: **(1)** *Design of siphons* (1956) Central Board of Irrigation and Power, New Delhi. **(2)** *Hydraulics* (1962) Asia Pub. House, Mumbai. **(3)** *Mechanics of fluids* (1978) Orient Longmans, Delhi. (4) *Fluid flow mechanics* (1983) Tata McGraw Hill.

Memberships: Fellow: American Soc. of Civil Engineers • President: Indian Geotechnical Soc.; Indian Natl Committee of World Power Conference; Institution of Engineers.

Awards & Distinctions: K F Antia Prize • Jawaharlal Gold Medal • IISc Alumni Award • President's Gold Medal, Central Board of Irrigation and Power • Nehru Gold Medal • IISc Platinum Jubliee Alumni Award 87.

Govindachari, Tuticorin Raghavachari*

Elected: 1951
Specialization: Chemistry of Plant Products; Organic Synthesis
Date and Place of Birth: 30 July 1915; Madras, Tamil Nadu
Parents: T G Raghavachari and Rajalakshmi
Spouse and Children: Rajamani; two *s*, one *d*(Rajagopalan, Sundarajan, Anuradha)
Last Address: 22, Crescent Park Street, T Nagar, Madras 600 017, India
***Deceased:** 28 December 2001

Education: Madras Univ.: BSc 34, MSc 36, PhD 46;

Career: Univ. of Illinois, USA: Postdoc Res. 49; Presidency College, Madras: Addl Prof. 50–51, Prof. 51; Chief Prof. 52–62; Principal 61–62; CIBA Res. Centre: Dir 63–75; Amruthanjan Res. Inst: Dir 77–86; Centre for Agrochemical Res., SPIC Sc. Foundation, Madras: Dir 86.

Scientific Work: Elucidated the structures of plant constituents, alkaloids, oxygen heterocycles and terpenoids, compounds like wedelolactone, tylophorine and its congeners, tiliacorine, ancistorocladine and its congeners, ishwarone, polyalthic acid and litsomentol – unique structural types not reported earlier. Developed new method of isolation from neem kernel extract of azadirachtin-A by direct preparative HPLC and also effected its crystallization for the first time in 1994 after its isolation in 1968, enabling elucidation of structure by X-ray diffraction. Isolated new azadirachtins H, I and K, whose structures were elucidated, by spectroscopic methods.

Important Publications: **(1)** Five decades in the study of natural products (2002) *Proc. Indian Acad. Sci. (Chem. Sci.)* **114**, 175–195. **(2)** Some aspects of the chemistry of natural products (1987) *Proc. Indian Natl Sci. Acad.* **A53**, 701–716. **(3)** Contributions from Indian laboratories to the chemistry of plant products (1984) *Proc. Indian Acad. Sci. Chem. Sci.* **93**, 491–502.

Memberships: Fellow: INSA 59.

Awards & Distinctions: S S Bhatnagar Prize 60 • Meghnad Saha Medal 75 • Golden Jubilee Commemoration Medal 86 • CRSI P C Ray Lifetime Achievement Award 2000 • President: Indian Chemical Soc 71–72.

Govindaswamy, M V*

Elected: 1947
Specialization: Brain Surgery
Date of Birth: 21 November 1904
Last Address: 30, Udayabhanu, Shankar Mutt Road, Bangalore 560 004, India
***Deceased:** 7 April 1961

Education: BSc, MA, MBBS; Univ. of England: DPM.

Career: All India Inst. of Mental Health (formerly, Mental Hospital), Bangalore: Medical Superintendent: Dir 54–59

Scientific Work: Regarded as the then foremost psychiatrist of the country and was the first to start psychosurgery in 1947. Responsible for bringing together psychological, medical, psychiatric and nursing aspects within the hospital framework. Contributions well known in the field of mental and nervous diseases and the application of classical Indian philosophical doctrines to the understanding of personality deviations.

Important Publications: Dr M V Govindaswamy lectures & writings (1971) *Indian J. Psychiatry* **13**, 2, 163–164.

Memberships: Member: Sub-Committee for Mental Diseases • Section of Bhose Committee appointed by Govt of India • Fellow: R. Soc. of Medicine, London; INSA 53.

Gowariker, Vasant Ranchhod

Elected: 1985
Position: Prof. Satish Dhawan Distinguished Prof., ISRO
Specialization: Propellant and Rocket Technology; Heat, Mass and Momentum Transfer Phenomena; Sugar Technology; Chemical Fertilizers
Date and Place of Birth: 25 March 1933; Poona, Maharashtra
Parents: Ranchhod and Narmada
Spouse and Children: Sudha; three *d*
Address: Flat No. 2, Mukta Apartments, 92/A2-3, Senapati Bapat Road, Shivaji Nagar,
Pune 411 016, India
Tel. (020) 2567 8759, (020) 2567 5126 (O), (020) 2544 3244 (R), Mobile: 93710 06989
email: fdp@pn2.vsnl.net.in

Education: Univ. of Poona: BSc 54, MSc 56; Univ. of Birmingham, UK: MSc 60, PhD 62; Univ. of Roorkee, Indore, Jabalpur, Shivaji: DSc.

Career: Atomic Energy Res. Establishment, England: Res. Assoc. 62–63; Summerfield Res. Station (an Energy Establishment of the British Ministry of Aviation), England: Sr Tech. Offr 63–67; ISRO, Space Sc. & Technol.

Centre, Trivandrum, Propellant Engg Dn: Head 67–76; Vikram Sarabhai Space Centre, Trivandrum, Chemicals & Materials Group: Dir 76–79, Centre Dir 79–85; Stanford Univ., USA, Dept of Aeronautics & Astronautics: Vis. Sci. 85–86; Govt of India, Dept of Sci. & Technol.: Secretary 86–91; Sci. Advisor to the Prime Minister 91–93; Chmn of the Advisory Committee, Sugar Technol. Mission 93; Chmn of the Rajiv Gandhi Sci. & Technology Commission, Govt of Maharashtra (Cabinet Rank); Vice-Chancellor, Univ. of Poona: 95–98.

Scientific Work: Especially in the areas of propellant and fuel technology, heat-mass-momentum transfer phenomena with and without chemical reactions and rocket motor designs, contributions are from the levels of being a working scientist to a design engineer to a science manager. Involved at various stages in inventing a reaction to processing the reaction, to the designing-engineering-installing and commissioning large manufacturing plants and chemical complexes to make India's solid propellant profile truly total, indigenous, self-reliant and world class. Invented with a team of meteorological scientists, a new monsoon model which has been accurately forecasting the quality and the quantity of India's southwest rains for the last seven years.

Important Publications: *The fertilizer encyclopedia in India*, John Wiley.

Memberships: Member: American Inst. of Aeronautics and Astronautics • Fellow: NASI 87 • Hon. Fellow: INAE.

Awards & Distinctions: Institution of Engineers Design Award • Padma Shri 84 • Citizens Award 92 • Astronautical Soc. of India, Aryabhata Award 2004 • President of India's nominee on Manipur Univ. Court • Indian Science Congress General President Medal 2007 • Padma Bhushan 2008.

Gowrishankar, Jayaraman

Elected: 1992
Position: Dir, CDFD, Hyderabad
Specialization: Microbial and Molecular Genetics
Date and Place of Birth: 24 March 1956; Mysore, Karnataka
Parents: V Jayaraman and Rajalakshmi
Spouse and Children: Swarnalata; two s (Srinivasan, Seshadri)
Address: Centre for DNA Fingerprinting and Diagnostics (CDFD), Tuljaguda, 4-1-714,
Mozamjahi Road, Nampally, Hyderabad 500 001, India
Tel. (040) 2474 9445, 2474 9446 (O), (040) 6576 1729 (R)
email: director@cdfd.org.in, lbg@cdfd.org.in; URL: http://www.cdfd.org.in

Education: Univ. of Madras: MBBS 79; Univ. of Melbourne, Australia: PhD 83.

Career: CCMB: Sci. 83–2000; CDFD: Staff Sci. 2000–2006, Dir 2006–.

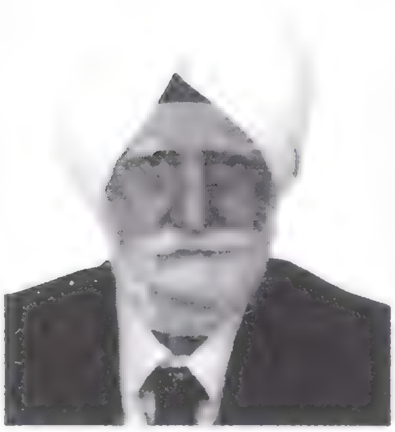
Scientific Work: Work has covered several areas of bacterial physiology, including osmoregulation, potassium and arginine transport, stationary phase metabolism, mechanisms of spontaneous mutations, and the interplay between transcription and translation in the model bacterium *Escherichia coli*. Discovered the *proU* operon in *E. coli* and its exquisite osmotic regulation; proposed an alternative model for regulation of the potassium transport operon kdp; identified an arginine exporter ArgO and delineated the mechanism by which it is regulated by arginine and lysine; studied the mechanisms of precise excision of transposable elements; demonstrated the occurrence of spontaneous mutations in nondividing bacterial cells, and enunciated a new hypothesis that toxic RNA-DNA hybrids (R-loops) are prone to occur from nascent untranslated transcripts in *E. coli*. Also developed and patented a generic process for salt-inducible overproduction of recombinant proteins in *E. coli*.

Important Publications: **(1)** Multiple mechanisms contribute to osmotic inducibility of *proU* operon expression in *Escherichia coli*: Demonstration of two osmoresponsive promoters and of a negative regulatory element within the first structural gene (1991) *J. Bacteriol.* **173**, 7481–7490. **(2)** Regulation of kdp operon expression in *Escherichia coli*: Evidence against turgor as signal for transcriptional control (1993) *J. Bacteriol.* **175**, 4528–4537. **(3)** Distinct signatures for mutator sensitivity of lacZ reversions and for the spectrum of lacI/lacO forward mutations on the chromosome of nondividing *Escherichia coli* (2004) *Genetics* **166**, 681–692. **(4)** Why is transcription coupled to translation in bacteria? (2004) *Mol. Microbiol.* **54**, 598–603. **(5)** Environmental regulation operating at the promoter clearance step of bacterial transcription (2007) *Genes Dev.* **21**, 1258–1272.

Memberships: Fellow: NASI 95; INSA 2001.

Awards & Distinctions: INSA Young Scientist Medal 86 • IASc Assoc. 87–91 • Young Scientist Award 87 • AMI-Alembic Award in Microbiology 90 • B M Birla Prize 91 • Eureka Forbes J V Bhat Memorial Award in Microbiology 93 • S S Bhatnagar Prize 97 • FICCI Prize 97 • New Millennium Medal, ISCA 2000 • CSIR Technology Prize 2000 • Om Prakash Bhasin Award 2005 • J C Bose National Fellowship 2007.

Grewal, Ripdaman Singh



Elected: 1975
Specialization: Pharmacology
Date and Place of Birth: 3 December 1922; Narangwal, Punjab
Parents: Khem Singh and Sampooran
Spouse and Children: Varinda; one *s*, two *d*
Address: 659, Sector 16-D, Chandigarh 160 015, India
Tel. (0172) 278 1861 (R)
email: rsgrewal22@googlemail

Education: Univ. of Panjab: BSc 42, MBBS 48; Oxford Univ.: DPhil 53.

Career: V J Medical College, Amritsar: House Physician 48–49; Medical College, Dibrugarh: Registrar 49–50; Medical College, Nagpur: Reader 53–56, Prof. 56–62; Natl Res. Council of Canada: Res. Fellow 58–60; CIBA GEIGY Res. Centre, Bombay: Group Leader 62–65; Dy Dir 65–81, Dir 86–90.

Scientific Work: Done outstanding work in the areas of cardiovascular and central nervous system pharmacology. Responsible for the development of two substances to be prescribed to prevent or reduce depression and schizophrenia.

Important Publications: **(1)** The pharmacological action of 6-methyl adrenaline (1952) *Br. J. Pharmacol.* **7**, 338–348. **(2)** A method for testing analgesics in mice (1952) *Br. J Pharmacol.* **7**, 433–437. **(3)** Is epinephrine reversal a phenomenon purely of α-adrenergic block? (1970) *Arch. Int. Pharmacodyn. Ther.* **186**, 363–378, 26. **(4)** Effect of carbamazepine on seizure and EEG patterns in monkeys with alumina induced focal motor and hippocampal foci (1976) *Epilepsia* **17**, 415–422. **(5)** On the mechanism of action of an adrenergic blocking guanidine (1981) *Arch. Int. Pharmacodyn. Ther.* **251**, 192–204.

Memberships: Fellow: Maharashtra Acad. of Sci. • Member: CIBA Pharma Res. Board, Basel 81–86; British Pharmacological Soc.; Canadian Pharmacological Soc.; New York Acad. of Sci.; Indian Assoc. of Physiologists and Pharmacologists • Past President: Indian Pharmacological Soc.

Awards & Distinctions: Prof. of U K Sheth Oration.

Grover, Anil

Elected: 2007
Position: Prof., Univ. of Delhi South Campus
Specialisation: Plant Abiotic Stress Responses; Plant Biotechnology and Molecular Biology; Crop Science
Date and Place of Birth: 15 August 1958; New Delhi
Parents: S S Grover and K P Sachdeva
Spouse and Children: Anita ; one *s* (Kartikey)
Address: Department of Plant Molecular Biology, University of Delhi South Campus,
Benito Juarez Road, New Delhi 110 021, India
Tel. (011) 2411 7693, (011) 2411 5097 (O), (011) 2599 1887 (R), Mobile: 98716 18167
email: anil.anilgrover@gmail.com, anil.grover@south.du.ac.in
URL: http://www.south.du.ac.in/pmb/mod.php?mod=userpage&menu=1324&page_id=20

Education: Delhi Univ.: BSc Hons 77, MSc 79; IARI, New Delhi: PhD 84.

Career: JNU, New Delhi: Postdoc 84–85; TERI, New Delhi: Postdoc 85–87; CIDA-NSERC, Canada: Postdoc 87–88; Delhi Univ.: Lecturer 89–94; Sr Lecturer 94–96, Reader 96–2002, Prof. 2002–.

Scientific Work: Research interest is to understand response shown by rice plants towards abiotic stresses. Polyclonal antibodies have been raised against rice HSP100 and HSP90 proteins. Immunological evidence has been presented to show that rice HSP100 proteins are highly conserved. The group has established that HSP100 expression is developmentally controlled. Has isolated and sequenced rice HSP100 gene (EMBL/Gene Bank /DDBJ database accession no. AJ316025). Based on in silico analysis of genomic sequence data, this group has assessed that there are three independent loci that encode for Hsp100 proteins (which differ with respect to their cellular localization sites) both in rice and *Arabidopsis*. Has shown that rice hsp100 cDNA (cytoplasmic) complements yeast hsp104 deletion and loss of thermotolerance trait in yeast. Has further isolated and sequenced rice hsp100 gene (cytoplasmic) promoter (accession no. AJ302059). Recent work highlights that rice hsp100 gene (cytoplasmic) is regulated both at transcriptional and translational levels.

Important Publications: **(1)** Chymotrypsin protease inhibitor gene family in rice: Genomic organization and evidence for the presence of a bidirectional promoter shared between two chymotrypsin protease inhibitor genes (2009) *Gene* **428**, 9–19. **(2)** Complexity of rice Hsp100 gene family: Lessons from rice genome sequence data (2007) *J. Biosci.* **32**, 611–619. **(3)** Heat tolerant basmati rice engineered by overexpression of hsp101 gene (2003) *Plant Mol. Biol.* **51**, 677–686. **(4)** Rice Hsp100 protein complements yeast hsp104 mutation by promoting disaggregation of protein granules and shows differential expression in indica and japonica rice types (2003) *Plant Mol. Biol.* **51**, 543–553. **(5)** Distribution patterns of the 104 kDa stress-associated protein of rice reveal its constitutive accumulation in seeds and disappearance from the just-emerged seedlings (1998) *Plant Mol. Biol.* **37**, 911–919.

Memberships: Fellow: NASI 99; INSA 2007; NAAS 2003.

Awards & Distinctions: INSA Young Scientists Medal 90 • B M Birla Science Prize, Biology 99 • National Bioscience Award 2003.

Grover, Arun Kumar

Elected: 1997
Position: Prof., TIFR, Mumbai
Specialization: Magnetism and Superconductivity; NMR Applications in Solids; Vortex State Studies in Superconductors; Strongly Correlated Systems
Date and Place of Birth: 12 December 1951; Delhi
Parents: Amarnath Grover and Vimla
Spouse and Children: Neera; one *s*
Address: Department of Condensed Matter Physics & Materials Science, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2327 (O), (022) 2280 4737 (R), Mobile: 98695 45430
email: grover@tifr.res.in

Education: Punjab Univ.: BSc 68, BSc Hons 71, MSc 72; Univ. of Mumbai: PhD 79.

Career: TIFR: Vis. Member 72–77, Res. Assoc. 77–82, Fellow 82–88, Reader 88–95, Assoc. Prof. 95–98, Prof. 98–; Imperial College, London: Postdoc 80–82; Panjab Univ., Chandigarh: Prof. 91–94.

Scientific Work: Discovered novel features and provided resolution of several important contemporary pristine physics issues in magnetism and superconductivity over the last three decades. These include co-existence of non-magnetic and magnetic parts in a metallic cluster spin glass system, elucidation of mutually constrained dynamics to cause multiple phase transitions like attribute in re-entrant spin glasses, unravelling the hybrid state of magnetic superconductor Y_9Co_7 comprising simultaneous build up of ferromagnetic correlations and superconducting order parameter, etc. Noteworthy contributions in the vortex state studies since the advent of high T_c era include the determination of decoupling line in highly anisotropic bismuth cuprate superconductor via the discovery of the differential diamagnetic effect in AC shielding, response, discovery of the re-entrant nature of the order–disorder transformation line in weakly pinned vortex matter, sketch of the generic features in the vortex phase diagrams of conventional and novel superconductors, etc. Current interests also include study of magnetic materials useful for spintronics in which the phase reversal in the exchange bias field and the phenomenon of repeated magnetic compensation has been demonstrated.

Important Publications: **(1)** Host and impurity NMR studies in CoGa alloys. A cluster spin glass sytem (1979) *Solid State Commun.* **30**, 457. **(2)** The hybrid state of the magnetic superconductor Y_9Co_7 (1982) *J. Phys.* **F12**, 107. **(3)** Reenterant peak effect and the melting of a flux line lattice in 2H-$NbSe_2$ (1996) *Phys. Rev. Lett.* **76**, 4600. **(4)** Anomalous peak effect in $CeRu_2$ and 2H-$NbSe_2$: Fracturing of a flux line lattice (1998) *Phys. Rev.* **B58**, 995. **(5)** Repeated magnetic compensation behaviour in the rare earth $Nd_{0.75}Gd_{0.25}Rh_3B_2$ alloy with hexagonal structure and planar anisotropy (2008) *Phys. Rev.* **B78,** 064426.

Memberships: Fellow: NASI 97.

Awards & Distinctions: First Bruker Young Scientist Award 82 • Research Award for Foreign Specialists, Govt of Japan 91, 93 • MRSI Medal 96 • Homi Bhabha Science and Technology Award 95.

Guha, Praphulla Chandra*

Elected: 1936
Specialization: Organic Chemistry
Date and Place of Birth: 15 February 1894, Routhbagha, Bangladesh
Parents: Govind Chandra Guha and Brajalakshmi
Spuse and Children: Nalnibala; six *s*, seven *d*
Last Address: Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 6 November 1962

Education: Calcutta Univ.: BSc Hons 15, MSc 17, PhD 20, DSc 23.

Career: IISc, Bangalore, Dept of Organic Chem.: 28–52.

Scientific Work: Did pioneering work on the synthesis of mono- and sequi-terpeniods and bridged bicyclic compounds. Investigations covered stereochemistry, geometrical isomerism, steric hindrance, steric effects in aromatic substitution and heterocyclic compounds. Intitiated work on synthetic drugs, established preparative synthesis for well-known antimalarials, sulpha drugs, local anaesthetics and many other useful products. Notable work also includes essential oils and natural products.

Important Publications: **(1)** Development of organic chemical industry in India (1952) *J. Indian Chem. Soc.* **29**, 1–12. **(2)** Recent advances in the chemistry of sesquiterpenes (1953) *J. Indian Chem. Soc.* **30**, 81–97.

Guha-Mukherjee, Sipra*

Elected: 1988
Specialization: Molecular Biology; Plant Tissue Culture; Genetic Engineering
Date and Place of Birth: 13 July 1938; Calcutta
Spouse and Children: N P Mukherjee; two *d*
Last Address: School of Life Sciences, Jawaharlal Nehru University, New Mehrauli Road,
New Delhi 110 067, India
***Deceased:** 15 September 2007

Education: Univ. of Delhi: BSc 57, MSc 59, PhD 63.

Career: Univ. of Delhi: Postdoc Fellow 63–66; Michigan State Univ., USA, AEC Plant Res. Lab.: Res. Assoc. 66–88; IARI: Sci. Pool Offr 68–70; West Virginia Univ., USA, Dept of Biology: Asst Prof. 70–72; JNU, School of Life Sciences: Assoc. Prof. 72–79, Prof. 79, Dean 93–95.

Scientific Work: Developed techniques for production of haploid plants through another culture. Worked extensively to understand biochemical and molecular basis of differentiation in plant culture. Identified a number of morphogenetic molecules participating in cell membrane, cytoplasm and nucleus causing differential gene expression which resulted in differentiation or proliferation of cells in tissue culture. Cloned threonine deaminase gene to induce site-directed mutagenesis to make the regulatory part of the enzyme non-functional.

Memberships: Fellow: NASI.

Awards & Distinctions: Fulbright Fellowship USEF 66–68 • Om Prakash Bhasin Foundation Award 89 • Kanishka Award, Lions Club.

Gunjikar, K R*

Elected: 1935
Specialization: Applied Mathematics
Date of Birth: 8 March 1894
Last Address: Royal Institute of Science, Bombay, India
***Deceased:** 11 February 1990

Career: R. Inst. of Sci., Bombay, Dept of Applied Mathematics: Prof.

Important Publications: *An introduction to the calculus* (1938) Oxford Univ. Press, London.

Gupta, Alok Krishna

Elected: 1994
Position: Emeritus Prof., NCEMP, Allahabad
Specialization: Experimental Petrology; Mineralogy; Geochemistry
Date and Place of Birth: 4 December 1942; Burdwan, West Bengal
Parents: K P Gupta and Hiranmoyee
Spouse and Children: Chhaya; two *s*
Address: National Centre of Experimental Mineralogy and Petrology, University of Allahabad,
14 Chatham Lines, Allahabad 211 002, India
Tel. (0532) 264 4951, (0532) 225 0840 (O), (0532) 254 0549 (R), Mobile: 93051 35062
email: ncempald@dataone.in, alok.krishna.gupta@gmail.com; URL: http://www.ncemp.org

Education: Jadavpur Univ.: BSc 62, MSc 64; Pittsburgh Univ., USA: PhD 69.

Career: Univ. of Pittsburgh, USA: Teaching Asst 65–69, Postdoc Fellow 69–71; Univ. of Western Ontario, London, Canada: Postdoc Res. 74, Postdoc Fellow 71–74; Univ. of Ruhr, West Germany: Postdoc Res. 75, Res. Assoc. 74–75; Hokkaido Univ. Japan: Postdoc Res. 77, Res. Assoc. 75–77; Univ. of Roorkee: Lecturer 78–80, Reader 80–86; Univ. of Melbourne, Australia: Vis. Res. Fellow 79–80; Univ. of Allahabad, Dept of Earth & Planetary Sci.: Prof. and Head 86–2005; Natl Centre of Exp. Mineralogy and Petrology: Dir 2005–07.

Scientific Work: Experimentally established model of the genesis of pseudoleucite. Synthesized and determined, for the first time, the chemistry and thermodynamic properties of the enigmatic mineral bicchulite. Determined the cause of incompatible relationship between olivine and grossularite, and leucite and albite, and the absence of titanium rich augite in silica-rich igneous rocks. Model for the genesis of ultrapotassic rocks based on a study of more than 25 pseudoternary and quaternary systems is generally accepted.

Important Publications: **(1)** *Petrology and genesis of leucite bearing rocks* (1980) Springer-Verlag, Berlin, Heidelberg, New York, pp. 252. **(2).** Leucite-Na-feldspar incompatibility: An experimental study, (1975) *Mineral Mag. (London)* **40**, 337–384. **(3)** Effect of silica concentration on the solubility of titanium (1973) *Clinopyroxene in the system diopside* – $CaTiAl_2O_6$–SiO_2, *Contrib. Mineral. Petrol. (Germany)* **41**, 4, 333–344. **(4)** *Experimental study on two picrites with reference to its genesis* (1977). **(5)** Synthesis, composition, thermal stability, thermodynamic properties of bicchulite $Ca_2[Al_2SiO_6](OH)_2$ (1978) *Amr. Mineral.* **63**, 4, 58–65, 23. **(6)** The liquidus surface of the system forsterite-nepheline-silica at 28 kb (1987) *Amer. J. Sci* **287**, 6, 560–565. **(7)** Experimental study of the system forsterite-kalsilite-SiO_2 in presence or absence of volatiles (CO_2 or H_2O) under 28 kb (1988) *Mineral. Petrol. (Austria)* **39**, 163–174. **(8)** Experimental study of the system diopside-nepheline-sanidine under 0.1, 1 and 2 GPa [$P(H_2O)=P(\text{Total})$]: Its significance in the genesis of alkali-rich basic and ultrabasic rocks (2006) *Lithos* **86**, 91–109 **(9)** Experimental study of the synthetic forsterite-diopside-leucite-leucite and forsterite-leucite-akermanite up to 23 GPa [$P(H_2O)=P(\text{total})$] and variable temperatures: its significance in the genesis of ultrapotassic rocks (2007) *Lithos*.

Memberships: Member: Mineralogical Soc. of America; Indian Geophysical Union; Sigma Xi, Univ. of Pittsburgh, USA • Fellow: NASI 88; INSA 91 • Fellow of all the three National Academies, Vice-President: INSA

Awards & Distinctions: UGC Career Award 79–80 • S S Bhatnagar Prize 86 • UGC National Lecturer 86–87 • Vice-President, INSA • Birbal Sahni Gold Medal for Lifetime achievements.

Gupta, Anil Kumar

Elected: 2008
Position: Prof., IIT, Kharagpur
Specialization: Paleomonsoon; Paleoclimatology; Paleoceanography
Date and Place of Birth: 2 November 1960; Islamnagar, Budaun, Uttar Pradesh
Parents: Madan Lal and Angoori Devi
Spouse and Children: Suneeti; one *s*, one *d* (Shiram, Akansha)
Address: Department of Geology and Geophysics, Indian Institute of Technology, Kharagpur 721 302, W. B., India
Tel. (03222) 28 3368 (O), (03222) 28 3369 (R), Mobile: 94340 21903
email: anilg@gg.iitkgp.ernet.in, anil_k_gupta1960@yahoo.co.in

Education: AMU: BSc Hons 80; Banaras Hindu Univ.: MSc 82, PhD 87.

Career: IIT Kharagpur: Lecturer 87–91, Asst Prof. 91–99, Assoc. Prof. 99–2003, Prof. 2003–.

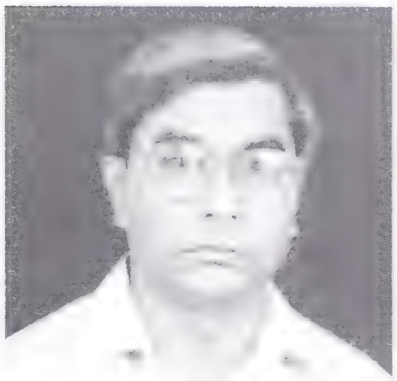
Scientific Work: For the first time, recorded a link between heating of the Indian landmass and intensification of summer monsoon winds during the past 400 years in the paleorecord of the Arabian Sea.

Important Publications: **(1)** Solar Influence on the Indian summer monsoon during the holocene (2005) *Geophys. Res. Lett.* **32**, L17703. **(2)** Indian Ocean high-productivity event (10–8 Ma): Linked to global cooling or to the initiation of the Indian monsoons? (2004) *Geology* **32**, 753–756. **(3)** Abrupt changes in the holocene Asian southwest monsoon and their links to the North Atlantic Ocean (2003) *Nature* **421**, 354–357. **(4)** Initiation of northern hemisphere glaciation and strengthening of the northeast Indian monsoon: Ocean drilling program site 758, eastern equatorial Indian Ocean (2003) *Geology* **31**, 47–50. **(5)** Increase in the Asian southwest monsoon during the past four centuries (2002) *Science* **297**, 5581, 596–599.

Memberships: Fellow: NASI 2006.

Awards & Distinctions: ISCA, Young Scientist Award 90 • Best Paper Medals, The Geological, Mining and Metallurgical Soc. of India 90 • National Mineral Award 2000 • T M Harris Medals, Birbal Sahni Inst. of Paleobotany 2004 • J Coggin Brown Memorial Gold Medal, MGMI 2005–06.

Gupta, Chhitar Mal



Elected: 1987
Position: DBT Distinguished Res. Prof., CDRI, Lucknow
Specialization: Membrane Biology; Bio-organic Chemistry; Molecular Biophysics
Date and Place of Birth: 1 September 1944; Bharatpur, Rajasthan
Parents: B L Gupta and C Devi
Spouse and Children: Savita; one *s*, one *d*
Address: Central Drug Research Institute, P. B. 173, Chattar Manzil, Lucknow 226 001, India
Tel. (0522) 261 0282 (O), (0522) 232 1625 (R)
email: drcmg@satyam.net.in, drcmg@rediffmail.com

Education: Rajasthan Univ.: BSc 64, MSc 66: Agra Univ.: PhD 69.

Career: CDRI, Lucknow: Jr Res. Fellow 66–69, Sr Res. Fellow 69–71, Sci 71–83, Dir 97–2007, DBT Dist. Biotechnologist 2007–09, Membrane Biology Dn, Head 86–92; Inst. Mol. Biol., Syntex Res.: Postdoc Fellow 74–76; MIT, USA: Res. Assoc. 76–78, Vis. Sci. 81; Inst. of Microbial Technol., Chandigarh: Dir 92–97.

Scientific Work: Delineated the mechanisms that generate and maintain the transbilayer phospholipid asymmetry in erythrocyte membrane. Developed a novel class of liposomes which resist their lysis by blood components and survive for long in blood circulation. Developed efficient and novel methods for successful treatment of aspergillosis and drug-resistant malaria. Delineated the structure and function of action cytoskeleton in *Leishmania* parasites.

Important Publications: **(1)** Actin-depolymerizing factor, ADF/cofilin, is essentially required in assembly of *Leishmania flagellum* (2008) *Mol. Microbiol.* **70**, 4, 837–852. **(2)** An unconventional form of actin in protozoan haemoflagellate, *Leishmania* (2008) *J Biol. Chem.* **283**, 33, 22760–22773. **(3)** Red cell membrane abnormalities in chronic myeloid leukaemia (1983) *Nature* **303**, 632–633. **(4)** Transbilayer phospholipid asymmetry in *P. knowlesi* infected host cell membrane (1981) *Science* **212**, 1047–1049. **(5)** A new potent blood sugar lowering agent (1969) *Nature* **223**, 524.

Memberships: Fellow: INSA 89; NASI 91, NAMS 99; TWAS 2000.

Awards & Distinctions: Medal for Young Scientists 74 • S S Bhatnagar Prize 85 • Ranbaxy Res. Foundation Award 85 • S S Mishra Memorial Award 82 • Golden Jubliee Commemoration Award 2000 • FICCI Award 94 • Bhasin Award 99 • Goel Prize 2002.

Gupta, Laxmi Chand

Elected: 1989
Specialization: Quaternary Borocarbides and other Rare Earth Based Materials; New Superconducting Materials; Nuclear Magnetic Resonance; Mixed Valence and Heavy Fermion Phenomena
Date and Place of Birth: 12 December 1938; Achhnera, Uttar Pradesh
Parents: Sham Lal Gupta and Dropadi Devi
Spouse and Children: Kanta Rani; one *s*, one *d*
Address: 403, Vigyanshila Co-op. Housing Society, Juhu-Versova Link Road, Andheri (West),
Mumbai 400 061, India
Tel. (022) 2631 4555 (R)
email: lcgupta@tifr.res.in, lcgupta38@yahoo.com

Education: Univ. of Bombay: BSc (Hons) 59, PhD 75; Atomic Energy Training School 60.

Career: TIFR, Mumbai: Res. Assoc. 60–70, Fellow 70–76, Reader 76–84, Assoc. Prof. 84–88, Prof. 88–93, Sr Prof. 93–2003; Polytechnic Inst. of New York, USA: Assoc. Prof. 80–82; Univ. of California, Riverside USA: Vis. Assoc. Res. Physicist 82–83; Los Alamos Natl Lab., USA: Consultant 83; CNRS, France: Vis. Prof. 88; Max Planck Inst for the Physics of Complex Systems (MPIPKS), Dresden, Germany: Humboldt Res. Awardee 2002–03; Dept of Physics, Mumbai Univ.: Vis. Prof. and DAE-BRNS Sr Sci. 2004–05; MPIPKS, Dresden, Germany: Vis. Sci.; IFW, Dresden, Germany: Vis. Sci. 2006.

Scientific Work: Discovery of quaternary borocarbide superconductors is an important contribution to superconductivity. The impact that this discovery has generated makes it a landmark event in superconductivity. Subsequently also, new superconducting materials have been identified. Investigations of valence fluctuation phenomena in Eu inter-metallics led to the observation of mixed valence in several Eu-based materials. EuPd2Si$_2$ and $EuNi_2P_2$ are the most important among them. $EuPd_2Si_2$ exhibits unique and most remarkable mixed valence properties. Work on Ce-based materials is also noteworthy. Demonstrated, using NMR techniques, that $CeRu_2Si_2$ is a Kondo-lattice system. $CeRh_2Si_2$ was shown to be an antiferromagnet with $T_N \sim 37$ K, which is unusually high for a Ce-material. Also made significant contributions in high-T_c superconductivity and in ferroelectricity.

Important Publications: **(1)** Bulk superconductivity at an elevated temperature ($T_c = 12$ K) in a Ni containing alloy system Y–Ni–B–C R (1994) *Phys. Rev. Lett.* **72**, 274. **(2)** Magnetic order and crystal structure in the superconducting RNi_2B_2C materials (1997) *Phys. Rev.* **B55**, 6584. **(3)** Magnetic behaviour of the Kondo lattice system $CeRu_2Si_2$ (1983) *Phys. Rev.* **B28**, 3673. **(4)** A new and unique Eu-based mixed valence system – $EuPd_2Si_2$ (1981) *J. Phys.* **C14**, L237. **(5)** Cooperative configuration change in $EuPd_2Si_2$ (1982) *Phys. Rev. Lett.* **48**, 826.

Memberships: Fellow: INSA 92; NASI 95; TWAS 2003.

Awards & Distinctions: DAE-BRNS Sr Sci. 2004 • Humboldt Research Award 2002 • MRSI-ICSC Prize 95.

Gupta, Pradeep Kumar

Elected: 2007
Position: Prof., Raja Ramanna Centre for Advanced Technol., Indore
Specialization: Lasers; Biomedical Applications of Lasers; Nonlinear Optics
Date and Place of Birth: 16 August 1954; Mathura, Uttar Pradesh
Parents: R C Gupta and Maya Rani
Spouse and Children: Sudha; two s (Shashank, Anshul)
Address: Laser Biomedical Applications & Instrumentation Division, Raja Ramanna Centre
for Advanced Technology, Indore 452 013, India
Tel. (0731) 248 8432 (O), (0731) 248 7321 (R)
email: pkgupta@rrcat.gov.in

Education: Lucknow Univ.: BSc 71, BSc Hons 72, MSc 73; Heriot Watt Univ., UK: PhD 81.

Career: BARC: Trainee Sci. Offr 73–74, Sci. Offr 74–90; Heriot-Watt Univ.: Commonwealth Scholar 79–81, Res. Assoc. 88–89; RRCAT, Indore: Sci. Offr 89–.

Scientific Work: Contributions in the area of biophotonics include: unravelling factors responsible for the observed differences in fluorescence from normal, benign and malignant tissue; use of autofluorescence spectroscopy for *in vivo* diagnosis of cancer of oral cavity using an in-house system; development of novel laser micromanipulation techniques for optical transport and two/three dimensional rotation/orientation of intracellular objects; use of optical tweezers for applications like, malaria diagnosis, transfection, guidance of neuronal growth cones, optical binding of nanoparticles, etc; identification of the factors responsible for the observed differences in depolarization of light in tissues and 'equivalent' phantoms; development of optical coherence tomography and its use for biomedical imaging; unravelling the effect of light on biological systems. Earlier contributed to the utilization of nonlinear frequency conversion and CO_2 laser-pumped molecular gas lasers for the generation of coherent mid-infrared radiation.

Important Publications: **(1)** Optical micromanipulation methods for controlled rotation, transportation and microinjection of biological objects (2007) *Methods Cell Biol.* Elsevier, New York, Vol. 82, pp. 563–599. **(2)** Lasers and laser tissue interaction (2007) *Fundamentals & applications of biophotonics in dentistry*, Imperial College Press, London, 123–148. **(3)** Breast cancer diagnosis using N_2 laser excited autofluorescence spectroscopy (1997) *Lasers in Surgery and Medicine* **21**, 417–422. **(4)** Origin of periodic, chaotic and bistable emission from Raman lasers (1989) *Phys. Rev. Lett.* **63,** 1372–1375. **(5)** Optically pumped molecular gas lasers in Infrared and millimeter waves (1983) *Coherent sources and applications* Part II, Academic Press, New York, Vol. 7, pp. 43–118.

Memberships: Fellow: NASI 2003.

Awards & Distinctions: Annual Award, Soc. for Cancer Research and Communication 2006 • Homi Bhabha Science and Technology Award 98 • IPA N S Satyamurthy Memorial Award 88.

Gupta, Pushpendra Kumar

Elected: 1989
Position: Hon. Emeritus Prof., CCS Univ., Meerut
Specialization: Cytogenetics; Genetics and Plant Breeding; Crop Biotechnology
Date and Place of Birth: 14 December 1936; Saharanpur, Uttar Pradesh
Parents: Mansha Ram Gupta and Sabazkali
Spouse and Children: Sudha; one *s*, one *d* (Ankur, Ritu)
Address: Department of Genetics & Plant Breeding, CCS University, Meerut 250 004, India
Tel. (0121) 276 8195 (O), (0121) 276 2505 (R), Mobile: 94116 19105
email: pkgupta36@gmail.com, pkgupta36@hotmail.com

Education: Agra Univ.: BSc 56, MSc 58; Manitoba Univ., Canada: PhD 67.

Career: Meerut College: Lecturer 58–59; DAV College, Muzaffarnagar: Head 59–60; Gorakhpur Univ.: Lecturer 60–69; CCS Univ., Meerut: Reader 69–76, Prof. 76–96, CSIR Emer. Sci. 96–2002, Hon. Prof. 2002–; Univ. of Manitoba, Canada: Commonwealth Scholar 64–67; Univ. College of Wales, UK: Dept of Agri. Botany: Commonwealth Academic Staff Fellow 74–75.

Scientific Work: Examined homoeology of rye chromosomes; studied meiosis in distant hybrids involving genera *Triticum, Hordeum secale, Aegilops* and *Agropyron*; reconstructed and studied several triticales. Studied distribution of ribosomal DNA/other repeat sequence in 25 *Hordeum* and 10 *Avena* species; studied taxonomy of wheat – *Aegilops, Triticale*, etc.; prepared standard karyotypes, estimated nuclear DNA contents and produced colchiploids and interchanges in several pulse crops; studied induced mutations in wheat, triticales, foxtail-millet, mungbean, pea, chickpea, and lentils leading to the release of mutant mungbean variety MUM-2 for cultivation in Northern India; utilized several genera for biosystematic studies, several fodder grasses for study of apomixis and species of *Lolium, Crotalaria* and some pulses for DNA estimations; conducted genetic studies using biometrics in cereals and pulses. Conducted studies involving molecular marker technology in bread wheat involving SSRs, AFLP and SAMPL for the study of genetic diversity and marker-trait association, leading to more than 50 publications during 1996–2008. Currently involved in molecular marker-aided breeding in wheat and jute.

Important Publications: **(1)** *Genetics: Classical to modern* (2007) Rastogi Publications, Meerut. **(2)** *Biotechnology and genomics* (2002) Rastogi Publications, Meerut. **(3)** Single-molecule DNA sequencing technologies for future genomics research (2008) *Trends Biotechnol.* **26**, 602–611. **(4)** Array-based high-throughput DNA markers for crop improvement (2008) *Heredity* **101**, 5–18. **(5)** Wheat genomics: Present status and future prospects (2008) *Intl Plant Genomics*, Special Issue on genomics of major crops and model plant species, Hindawi Publishing Corporation, USA.

Memberships: Fellow: NASI 79; INSA 86; NAAS; Indian Soc. of Genetics and Plant Breeding; Indian Botanical Soc.; Soc. of Cytology and Genetics.

Awards & Distinctions: Soc. Biosci., Muzaffarnagar, Norman H Dill Memorial Gold Medal 98 • Indian Bot. Soc., Birla Sahni Gold Medal 2004.

Gupta, Santosh Kumar

Elected: 1987
Position: Prof., IIT Bombay
Specialization: Polymer Engineering and Science; Bio-mimetic Adaptations of Multiobjective Evolutionary Algorithms; Experimental On-line Optimal Control
Date and Place of Birth: 19 July 1946; Allahabad, Uttar Pradesh
Parents: Har Swarup Gupta and Durgawati Rani
Spouse and Children: Sulochana; two *d* (Aatmeeyata, Akanksha)
Address: Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai,
Mumbai 400 076, India
Tel. (022) 2576 7256 (O), (022) 2576 8256 (R)
email: sk.gupta@che.iitb.ac.in; URL: http://www.che.iitb.ac.in/faculty/skg.html

Education: IIT Kanpur: BTech 68; Univ. of Pennsylvania, USA: MS 70, PhD 72.

Career: Univ. of Pennsylvania, USA: Postdoc 73; IIT, Kanpur, Dept of Chemical Engg: Asst Prof. 73–80, Prof. 80–; Univ. of Notre Dame, USA, Dept of Chem. Engg: Vis. Prof. 85–87; NUS Singapore Dept Chem: Vis Prof. 98–99; Univ. of Wisconsin, Madison, USA, Dept of Chemical Engg: Vis. Prof. 90, 99–2000; IIT Bombay: Chem. Engg, Vis. Prof. 2008–2010.

Scientific Work: Contributed to the mathematical modelling and fundamental understanding of a wide variety of chemical engineering systems including polymerizations. Recent model developed for the gel effect under semibatch reactor conditions has been confirmed experimentally, and has been used for on-line optimal computer control of polymerization reactors. Model for fibre-length distributions in vapour grown carbon fibres has been confirmed experimentally. Also, models for disc-stack and other centrifuges are used routinely for scaling up these units. Worked on developing bio-mimicked adaptations of evolutionary multi-objective optimization algorithms.

Important Publications: **(1)** *Mathematical methods in chemical and environmental engineering* (2004, 2008) Thomson Learning, Singapore, 689. **(2)** *Numerical methods for engineers* (2009) New Age Intl Publishers, 407. **(3)** Multi-objective optimal design of heat exchanger networks using new adaptations of the elitist non-dominated sorting genetic algorithm, NSGA-II (2008) *Ind. Eng. Chem. Res.* **47**, 3489–3501. **(4)** Applications of multiobjective optimization in chemical engineering (2000) *Rev. Chem. Eng.* **16**, 1–54. **(5)** Multi-objective optimization of an industrial fluidized-bed catalytic cracking unit (FCCU) using genetic algorithm (GA) with the jumping genes operator (2003) *Comp. Chem. Eng* **27**, 1785–1800.

Memberships: Fellow: NASI 2005.

Awards & Distinctions: Indian Inst. of Chemical Engineers Herdilla Award 87.

Gupta, Satish Kumar

Elected: 1999
Position: Staff Sci., NII, Delhi
Specialization: Reproductive Immunology; Reproductive Biology; Vaccines; Diagnostics
Date and Place of Birth: 20 April 1953; Chhachhrauli, Haryana
Parents: G P Gupta and Satya Rani
Spouse and Children: Rita; two s (Ashish, Manish)
Address: Reproductive Cell Biology Laboratory, National Inst. of Immunology, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2670 3651 (O), (011) 2674 2180 (R), Mobile: 98109 66357
email: skgupta@nii.res.in

Education: Delhi Univ.: BSc 73; AIIMS, Delhi: MSc 76, PhD 83.

Career: AIIMS: Jr Res. Offr 81–82; NII: Res. Offr 82–85, Sr Res. Offr 85–89, Staff Sci. 89–; ILS: Dir 2003–04.

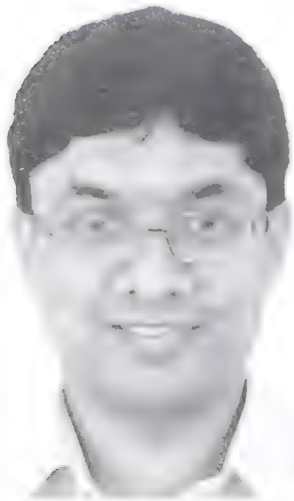
Scientific Work: Made pioneering contributions in elucidating the biological functions of reproductive hormones such as human chorionic gonadotropin and gonadotropin release hormone and oocyte specific zona pellucida (ZP) glycoproteins by employing monoclonal antibodies as specific probes. B cell epitope mapping, cloning and expression studies have led to new insight into the role of ZP glycoproteins in fertilization. Furthermore, these studies have helped in designing synthetic peptides/recombinant proteins as candidate immunogens to regulate fertility as applicable to humans. Establishment of a non-human primate model has permitted, for the first time, in-depth analysis of autoimmune disorder, if any, by immunization with self-protein for immunocontraception. Currently engaged in understanding the role of human zona pellucida glycoproteins during fertilization by employing recombinant proteins. In addition to the basic work, also contributed in the area of applied research as demonstrated by the production of first indigenous diagnostic kits for pregnancy detection and subsequently for group-A streptococci and HIV-1 and HIV-2 infections. Other interests include investigating the role of cytokines and growth factors that influence the proliferation, invasion and differentiation of trophoblast cells and downstream signalling events. Group also engaged in identification of extracts prepared from medicinal plants with an anti-HIV activity and subsequent isolation of compounds.

Important Publications: **(1)** Functional activity of human ZP3-primary sperm receptor, resides towards its c-terminus (2009) *Bio. Reprod.* **81**, 7–15. **(2)** Baculovirus expressed recombinant human zona pellucida glycoprotein-B induces acrosomal exocytosis in capacitated spermatozoa in addition to zona pellucida glycoprotein-C (2005) *Mol. Human Reprod.* **11**, 365–372. **(3)** Characterization of immune response in mice to plasmid DNA encoding dog zona pellucida glycoprotein-3. (2003) *Vaccine* **21**, 1913–1923. **(4)** Purified and refolded recombinant bonnet monkey (*Macaca radiata*) zona pellucida glycoprotein-B expressed in *Escherichia coli* binds to spermatozoa (2001) *Biol. Reprod.* **64**, 1147–1152. **(5)** Failure of female baboons (*Papio anubis*) to conceive following immunization with recombinant non-human primate zona pellucida glycoprotein-B expressed in *Escherichia coli* (2000) *Vaccine* **18**, 2970–2978.

Memberships: Fellow: NASI 94; INSA 2001; NAMS 2005 • Member: Guha Res. Conf. • Life Member: Intl Soc. for Immunology of Reproduction.

Awards & Distinctions: IASc Assoc. 86–89 • INSA Medal 82 • ICMR Shakuntala Amir Chand Prize 84 • Vasvik Award 94 • ICMR Sawaran Kantla Dingley Oration Award 95 • S S Bhatnagar Prize 97 • Indian Immunology Soc. Sr Sci. Oration Award • Population Control and Family Planning Award.

Gupta, Yashwant



Elected: 2008
Position: Prof. and Chief Sci., NCRA, Pune
Specialization: Astronomy and Astrophysics; Radio Astronomy Instrumentation; Signal Processing
Date and Place of Birth: 1 November 1962; Kharagpur, West Bengal
Parents: Virendra Pal Gupta and Nirmala
Spouse and Children: Richa; two *d*
Address: National Centre for Radio Astrophysics, Pune University Campus, Ganeshkhind,
Pune 411 007, India
Tel. (020) 2571 9000, (020) 2571 9242 (O), (020) 2571 9279 (R), Mobile: 98810 61930
email: ygupta@ncra.tifr.res.in

Education: IIT Kanpur: BTech 85; Univ. of California: MS 87, PhD 90.

Career: NCRA: Visiting Fellow, 90–92, Fellow 92–97, Reader 97–2000, Assoc. Prof. 2000–05, Prof. and Chief Sci. 2005–.

Scientific Work: Made several original and significant research contributions in astronomy; specifically, in the important and exciting field of pulsars (pulsating radio sources). These include the discovery, using the GMRT, of two very interesting and contrasting pulsars: the first one a binary millisecond pulsar with a highly eccentric orbit, in a globular star cluster of our galaxy; the second one a very young pulsar associated with a supernova remnant in our galaxy. Made significant contributions in the study of detailed emission properties of pulsars using the GMRT, and has developed novel methods leading to very good localization of the radio emission regions within the magnetospheres of the neutron stars. Also contributed to the study and understanding of pulsars showing complicated subpulse drift patterns, such as the enigmatic wide profile pulsar PSR B0826-34 and provided an explanation to resolve the puzzling behaviour of such pulsars. Worked on studies of the interstellar medium of our galaxy, using pulsars as probes, including such results as the demonstration of enhanced scattering from the boundaries of ionized gas bubbles in galactic space. Furthermore, made major contributions to technological developments in radio astronomy, especially in leading the development of digital hardware instrumentation for the GMRT – critically needed for its successful operation. Involved in the exercise of upgrading the GMRT to the next level of performance.

Memberships: Fellow: NASI 2007 • Life Member: Astronomical Soc. of India • Member: Intl Astronomical Union.

Awards & Distinctions: S S Bhatnagar Prize 2007 • URSI Young Sci. Award • Intl Union of Radio Sci. 96.

Guptasarma, Dharmajit

Elected: 1987
Specialization: Radiophysics and Electronics; Exploration Geophysics
Date and Place of Birth: 16 July 1932; Serajgunj, Bangladesh
Parents: Jagadish Chandra Gupta and Mrinalbala
Spouse and Children: Ishita; two *s*
Address: 203, Kakatiya Apartments, Street No. 2, Habshiguda, Hyderabad 500 007, India
Tel. (040) 2715 2062 (R), Mobile: 94412 70692
email: dguptasarma@gmail.com

Education: Calcutta Univ.: BSc Hons 50, MSc 52.

Career: Univ. of Calcutta, Dept of Radiophysics & Electronics: Scholarship 53–55, Lecturer 55–56; GSI, Calcutta: Geophysical Instrument Technician 56–60, Sr Geophysicist 60–65; NGRI, Hyderabad: Asst Dir, Sci. and Sci. Dir Grade 65–89, Dir 89–92, Emeritus Sci. 92.

Scientific Work: Theoretical and experimental work in exploration geophysics relates to electromagnetic induction and induced polarization as applied to exploration for minerals. Provided the basis of the current understanding of the electromagnetic response of systems of conductors with mixed geometry, and the relationship between true and apparent polarizability of buried mineral targets. Designed special digital linear filter operators for fast and accurate numerical computation of certain infinite integrals appearing in problems of computer-based interpretation of electrical and electromagnetic prospecting data. Designed, constructed and deployed many airborne, shipborne and ground electrical, electromagnetic and magnetic prospecting apparatus, based on new principles and approaches to exploration and interpretation. Through laboratory scale modelling of responses of idealized exploration targets provided current understanding of the effects of electric flux collection, and of the importance of electrochemical polarization at interface of ionic and electronic conductors.

Memberships: Member: National Committee of the IGCP • Fellow: INSA 87; A P Acad. of Sci.; Indian Geophysical Union; Assn of Exploration Geophysicists.

Awards & Distinctions: Indian Geophysical Union Krishnan Gold Medal 72 • Indian Geophysical Union Decennial Award 86 • Dept of Mines National Mineral Award 86–87.

Gurjar, Mukund Keshao

Elected: 1996
Position: Chief Sci. Offr, Dir R&D, Emcure Pharmaceuticals Ltd
Specialization: Organic Chemistry; Carbohydrate Chemistry; Synthetic Organic Chemistry
Date and Place of Birth: 28 August 1952; Nagpur, Maharashtra
Parents: K V Gurjar and N K Gurjar
Spouse and Children: Medha; one *s*, one *d*
Address: Emcure Pharmaceuticals Limited, P1, IT-BT Park Phase II, MIDC, Hinjwadi, Pune 411 057, India
Tel. (020) 3982 1350 (O), (020) 2588 7674 (R), Mobile: 93250 00010
email: mukund.gurjar@emcure.co.in; URL: http://www.emcure.co.in

Education: Nagpur Univ.: BSc 72, MSc 74, PhD 77; London Univ.: PhD 80.

Career: York Univ., Toronto: PDF 80–82; NCL Pune: Sci. 82–86; IICT, Hyderabad: Sci. 86–2007; Emcure Pharmaceuticals Ltd: Dir R&D 2007–.

Scientific Work: Group engaged in the synthesis of complex bioactive organic molecules such as β-lactam antibiotics (Thienamycin, 1 β-methylthienamycin, loracarbef, meropenem), anticancer antibiotics (anthracyclines, aranorosin), macrolides (jaspamide, geodiamolide), anti-AIDS agents (AZT, HIV protease inhibitors, batzelladine, michellamine), glycopeptides and cyclic peptides (vancomycin and K-13). Also engaged in synthesis of complex oligosaccharides and glycopeptides present on the cell surface of *Mycobacterium tuberculosis*, *M. kansasis*, *M. linda*, *M. szulgai*, *M. xenopi*, *M. fortuitum*, etc. Also worked on development of technologies for essential drugs such as AZT (anti-AIDS), mefloquine (anti-malarial), enalapril (anti-hypertensive), etoposide (anti-cancer), azithromycin (anti-bacterial), metoprolol, nadolol (β-blocker), S-timolol (antiglaucoma), etc.

Memberships: National Representative Intl Carbohydrate Organization • Fellow: NASI 94.

Awards & Distinctions: CSIR Young Scientist Award 87 • Ranbaxy Res. Award 91 • CSIR Technology Award 91, 93 • Vasvik Award 94.

Gurtu, Atul

Elected: 1996
Position: Sr Prof., TIFR, Mumbai
Specialization: Experimental High Energy Physics
Date and Place of Birth: 16 January 1946; Lahore, Punjab
Parents: Brij Krishna Gurtu and Kamla
Spouse: Promila
Address: Department of High Energy Physics, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2357 (O), (022) 2280 4640 (R), Mobile: 98690 47035
email: gurtu@tifr.res.in

Education: Punjab Univ.: BSc 65, MSc 66, PhD 71.

Career: Punjab Univ.: JRF 66–68, SRF 68–69; TIFR: Sr Vis. Member 69–73, Fellow 73–82, Reader 82–89, Assoc. Prof. 89–94, Prof. 94–2003, Sr Prof. 2003–.

Scientific Work: Study of stopping negative K mesons in nuclear emulsion and the properties of hypernuclei so produced; study of 200 and 400 GeV protons in nuclear emulsion and search for charm particles; study of anti-proton proton interactions in bubble chambers at various energies, study of strange particle production in Rapid Cycling Bubble Chamber-cum-European Hybrid Spectrometer (EHS) using 360 GeV protons and charm particle production in Lexan bubble chamber LEBC-EHS using 360 GeV pi-minus and 400 GeV protons. Coordinator at TIFR for brass tube proportional chamber fabrication for L3 hadron calorimeter, participation in L3 experiment at LEP, CERN; responsible (with S N Ganguli) for L3 lineshape analysis and precision determination of Z boson properties at LEP100, and for determination of W mass and width at LEP200.

Awards & Distinctions: India-CMS Spokesperson 2003– • Member, Particle Data Group Collaboration.

Guru Row, Tayur Narasingarao

Elected: 2006
Position: Prof., IISc, Bangalore
Specialization: Chemical Crystallography; Intermolecular Interactions; Polymorphism and Drug Design
Date and Place of Birth: 26 September 1951; Bangalore
Parents: T Narasinga Rao and N Manorama
Spouse and Children: G Row; two *d*
Address: Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2796 (O), (080) 2652 6423 (R), Mobile: 98805 09225
email: ssctng@sscu.iisc.ernet.in

Education: Bangalore Univ.: BSc 69, MSc 71; IISc: PhD 76.

Career: NCL: Sci. 82–88; IISc: Asst Prof. 89–92, Assoc. Prof. 93–98, Prof. 99–.

Scientific Work: Major areas of work comprise: polymorphism and drug design; change density analysis in molecular crystals; *in situ* cryocrystallization of liquids; inorganic complex oxides and photocatalysis. Emphasis is on understanding the weak interactions which operate at molecular levels in bringing molecular in a crystal lattice to pack the way they do.

Awards & Distinctions: IAS Assoc. 83–86 • CRSI Medal 2003 • CSIR Young Scientist Award 87.

Hamied, Abdul Khwaja*

Elected: 1945
Specialization: Chemical and Pharmaceutical Industry
Date and Place of Birth: 31 October 1898; Kachchh-Gujarat
Parents: Khwaja Abdul Ali and Masud Jehan Begum
Spouse and Children: Luba; two *s*; one *d*
Last Address: 289, Bellasis Road, Byculla, Bombay, India
***Deceased:** 23 June 1972

Education: Allahabad Univ.: BSc, MA; Univ. of Berlin, Germany: PhD, AIC.

Career: National Muslim Univ., Aligarh: Reader in Chemistry up to 23, Hon. Prof.; CIPLA: Founder MD 35; Natural Industrial Planning Corp: Founder-Dir; Jamia Milia Islamia, Aligarh: Founder-Prof.

Important Publications: **(1)** *Pitfalls in democracy* (1948). **(2)** *What is Hindi*? (1956) Alisons. **(3)** *An autobiography: A life to remember* (1972) Lalvani Publishing House.

Memberships: Member: Syndicate of Aligarh Muslim Univ.; Government of India Drug Company; Senate of Bombay Univ.; Bombay Legislative Council 37–62 • Fellow: Royal Inst. of Chemistry.

Awards & Distinctions: Sheriff of Bombay.

Hans-Gill, Rajinder Jeet

Elected: 1982
Position: Emeritus Prof., INSA Sr Sci., Panjab Univ.
Specialization: Number Theory; Discrete Geometry; Geometry of Numbers
Date and Place of Birth: 29 August 1943; Mohie, Panjab
Parents: Gursher Singh Hans and Gurdeep Kaur
Spouse and Children: Jagjit Singh Gill; one *s*, one *d*
Address: Department of Mathematics, Panjab University, Chandigarh-160 014,India
Tel. (0172) 254 1132, 253 4512 (O), (0172) 262 4837 (R), Mobile: 98153 45850
email: hansgill@pu.ac.in, hansgillrj@yahoo.co.in

Education: Panjab Univ.: BA Hons 60, MA 62; Ohio State Univ., USA: PhD 65.

Career: Panjab Univ., Chandigarh: Res. Scholar/Fellow 62–64, Reader 67–82, Prof. 82–2005, NBHM Vis. Prof., INSA Sr Sci. 2009–; Ohio State Univ., USA: Graduate Asst 64–65, Asst Prof. 66, Visitor 86–88; Univ. of Wisconsin, USA: Asst Prof. 66–67; Univ. of Nottingham: British Council Exchange Programme Vis. Fellow 75–76; Mathematical Inst: Visitor, Hungarian Acad. of Sci.: Visitor 82; Tech. Univ. Wien: Visitor 2000.

Scientific Work: Developed a theory of extremal sets for packings and coverings and made applications to answer some open questions. Obtained several results on double coverings and packings. Proved various results on the nonhomogeneous indefinite quadratic forms. These lead to proofs of a conjecture of Watson and another of Bambah, Dumir and Hans-Gill. Developed a general theory of view-obstruction problems and obtained several special results. Recently proved conjectures of Minkowski and of Woods for $n = 7$ and gave a unified proof of Woods' conjecture for $n < 7$.

Important Publications: **(1)** Maximal covering sets I and II (1971) *J. Indian Math. Soc.* **35,** 171–179, 181–203. **(2)** Positive values of non-homogeneous indefinite quadratic forms (1981) *Topics in classical number theory* Vols. I, II. Colloquia Mathematica Janos Bolyai, Budapest **34**, 111–170. **(3)** Contributions to a general theory of view-obstruction problems (1993) *Canadian J. Math.* **45,** 517–536. **(4)** Values of non-homogeneous indefinite quadratic forms (1994) *J. Number Theory* **47**, 190–197. **(5)** On conjectures of Minkowski and Woods (to appear in) *J. Number Theory.*

Memberships: Fellow: INSA 93; NASI 98; TWAS 2006 • Member: Indian Mathematical Soc.; Ramanujan Mathematical Soc.; Indian Science Congress Assn.

Awards & Distinctions: IMS Narasinga Rao Gold Medal 71.

Hariharan, Parameswaran

Elected: 1972
Specialization: Optics
Date and Place of Birth: 26 December 1926; Madras, Tamil Nadu
Parents: H Parameswaran
Spouse and Children: Rajeswari; one *s*, one *d*
Address: 608, Baron Dekalb Road, Wayne; PA 19087, USA
Tel. (+1-610) 341 0389 (R)
email: hariharan_optics@hotmail.com

Education: Univ. of Travancore: BSc 46, MSc 48; Univ. of Kerala: PhD 58.

Career: NPL, New Delhi: Jr Sci. Offr 49–51, Sr Sci. Offr 55–61; National Res. Council, Canada: Jr Res. Offr 51–54; Univ. of Marburg, West Germany: Vis. Prof. 62; Hindustan Photo Films Mfg. Co., Ootacamund, Dept of Development and Quality Control: Dir 62–71; IISc, Bangalore: Sr Prof. 71–73; CSIRO, Australia, Dn of Applied Phys.: Principal Res. Sci. 73–80, Sr Principal Res. Sci. 80–90, Chief Res. Sci. 90–91, Res. Fellow 91; Univ. of Sydney: Vis. Prof. 91; Hyderabad Univ.: Jawaharlal Nehru Prof. 93.

Scientific Work: Designed new types of interferometers for precision measurements, optical testing and high-resolution spectroscopy; developed improved processing techniques for holographic films and new techniques for multi-colour holographic imaging; and applied digital techniques to holographic interferometry.

Important Publications: **(1)** *Optical holography* (1984, 1996) Cambridge University Press. **(2)** *Optical interferometry* (1985, 2003) Academic Press. **(3)** *Basics of Interferometry* (1991, 2006) Academic Press. **(4)** *Basics of holography* (2002) Cambridge University Press.

Memberships: Member: Australian Natl Committee for Physics • Fellow: London Inst. of Physics; Optical Soc. of America; INSA; Royal Photographic Soc.; Intl Soc. for Optical Engg.

Awards & Distinctions: Optical Soc. of America, Joseph Fraunhofer Award 89 • Institute of Physics, London, Thomas Young Medal 91 • Intl Soc. for Optical Engg Dennis Gabor Award 92 • Intl Soc. for Optical Engg Gold Medal 2001 • Univ. of Sydney DSc (hc) 2001.

Harish Chandra*

Elected: 1975
Specialization: Harmonic Analysis on Reductive Groups
Date and Place of Birth: 11 October 1923, Kanpur
Parents: Chandrakishore and Chandrarani
Spouse and Children: Lalitha Kale; two *d* (Premala, Devaki)
Last Address: Institute of Advanced Study, Princeton, New Jersey, USA
***Deceased:** 16 October 1983

Education: Univ. of Allahabad: BSc 41, MSc 43; Univ. of Cambridge: PhD 47.

Career: IISc, Bangalore: Res. Fellow 43–45; Univ. of Cambridge: Graduate Student 45–47; Inst. of Advanced Study, USA: Member 47–49, 55–56, Prof. 63–70, IBM Von Neumann Prof. 70–83; Harvard Univ.: Jewett Fellow 49–50; Columbia Univ., New York: Lecturer 50–51, Asst Prof. 51–52, Assoc. Prof. 53–59, Prof. 59–63; TIFR, Bombay: Vis. Prof. 52–53; Guggenheim Fellow 57–58; Sloan Fellow 61–63.

Scientific Work: Main interest was the study of infinite dimensional representations and work centered around the study of semi-simple Lie groups and Lie algebras. Created a theory with implications for many domains from geometry to number theory. Conducted outstanding work on semi-simple Lie groups. Also known for work with Armand Borel founding the theory of arithmetic groups; and for papers on finite group analogues. Enunciated a philosophy of cusp forms, a precursor of the langlands philosophy.

Memberships: Fellow: Royal Soc. London 73; INSA 75; NASI.

Awards & Distinctions: Cole Prize, Am. Math. Soc. 54 • INSA Srinivasa Ramanujan Medal 74.

Harjit Singh

Elected: 1988
Position: Prof. Emeritus Prof. and INSA Sr Sci., Guru Nanak Dev Univ., Amritsar
Specialization: Organic Synthesis; Heterocycles
Date and Place of Birth: 29 April 1938; Ramdaspur, Punjab
Parents: Arjan Singh and Chanan Kaur
Spouse and Children: Nirmaljit Kaur; one *s*, one *d*
Address: Department of Chemistry, Guru Nanak Dev University, Amritsar 143 005, India
Tel. (0183) 225 8802-09/3194 (O), (0183) 256 3867 (R), Mobile: 94656 70668
email: harjit_gndu@yahoo.co.in

Education: Panjab Univ.: BSc Hons 57, MSc 59, PhD 64.

Career: Univ. of Hawaii, Honolulu and Louisiana State Univ. USA: Postdoctoral Res. Assoc. 65–67 and 67–68; Panjab Univ. Dept of Chem.: Lecturer 63–70; PAU Ludhiana: Assoc. Prof. in Chemistry 70–73; GNDU, Amristar: Reader 73–76, Prof. 76–1998, Emeritus Sci. 1998–.

Scientific Work: Discovered non-traditional 1, 3-heterocycles as tetrahydrofolate and thiamine models which have been used for achieving advantageous and pliable syntheses of many unique heterocycles, natural products and medicinally important molecules. Developed reactions of uracil analogs which have assisted in understanding of modes of their biochemical reactions and in developing their synthetically useful transformations. Sulphur transfer and extrusion reactions, iodine catalysed selective uracil alkylations through siloxy derivatives, phosphorous pentachloride induced reactions of imines to amides, phase transfer catalysed thione to carbonyl and amide to imide transformations constitute some findings of general synthetic utility. Amongst synthetic molecular receptor designs of macroheterocycles, heterocalixarenes and podands, some compounds have shown unprecedented metal cation selective ionophore character.

Memberships: Fellow: NASI 80; INSA 95.

Important Publications: (**1**) Metallacalixarenes: Organo-inorganic hybrid molecular architectures (2008) Adv. *Heterocyclic Chem.* Academic Press **96**, 123–73. (**2**) Heterocalixarenes 1. Calix[2]uracil[2]arene: Synthesis, X-ray structure conformational analysis and binding characters (1999) *J. Org. Chem.* **64**, 7717. (**3**) Bis-pyridine tetramide macrocycles role of increased preorganisation on Ag/Pb selectivity (1997) *Tetrahedron Lett.* **38**, 131 (**4**) Carbon transfer reactions with heterocycles V. A facile synthesis of nefedipine and analogs (1989) *Tetrahedron*, **45**, 3967. (**5**) Sulphur extrusion reactions IV. A halogen catalysed conversion of thiocarbonyl compounds into their oxygen analogs (1981) *J. Chem. Soc. Perkin I*, 2647.

Awards & Distinctions: Basudev Banerjee Memorial Medal • Prize of Indian Chemical Soc. 77 • GNDU Silver Jubilee Commemoration Plaque 94 in recognition of contribution to promote education and Research • Goyal Award and Medal in chemistry 97 • T R Seshadri 70th Birthday Commemoration Medal by INSA 2001 • Silver medal 2001 and Gold medal 2009, Chemical Research Society of India • UGC National Lecturer 86–87 • R C Shah Memorial Lecture Award, Mumbai 96 • Bawa Kartar Singh Memorial Lecture Award, Chandigarh • 10th Sukh Dev Endowment Lecture Award, Pune 2006.

Hasan, Gaiti

Elected: 2006
Position: Prof., NCBS, Bangalore
Specialization: Calcium Signalling in Neuronal Physiology; Molecular Genetics
Date and Place of Birth: 19 November 1956; Lucknow, Uttar Pradesh
Parents: Syed Amman Hasan and Sakina
Spouse and Children: Sudhir Krishna; one *d* (Seher)
Address: Professor, National Centre for Biological Sciences, GKVK Campus, Bangalore 560 065, India
Tel. (080) 2366 6140 (O), (080) 2361 3640 (R)
email: gaiti@ncbs.res.in; URL: http://www.ncbs.res.in

Education: Delhi Univ.: BSc 76; JNU: MSc 78, MPhil 80; Univ. of Cambridge: PhD 83.

Career: TIFR: Vis. Fellow 83–86, Res. Assoc. 87–91; Brandeis Univ.: Vis. Sci. 90–92; NCBS: Fellow 92–94, Reader 94–98, Assoc. Prof. 98–2004, Prof. 2005–.

Scientific Work: Research addresses the question of how an organism responds to changes in levels of intracellular calcium signals. Specifically interested in the second messenger Inositol 1,4, 5-triphosphate ($InsP_3$) and its intracellular receptor the $InsP_3$ receptor. This protein exists on the membranes of intracellular calcium stores and performs the dual function of a receptor for $InsP_3$ and a channel for calcium release. When $Insp_3$ is generated in the cell, in response to an external stimulus, it binds to the $InsP_3$ receptor and releases calcium from internal stores. $InsP_3$ receptor function in the model organism *Drosophila* is addressed using genetic, molecular, cellular, electrophysiological and behavioural techniques.

Important Publications: **(1)** Molecular cloning of an olfactory gene from *Drosophila melanogaster* (1990) *Proc. Natl. Acad. Sci. USA* **87**, 9037–9041. **(2)** Disruption of IP_3 receptor gene in *Drosophila* affects larval metamorphosis and ecdysone release (1997) *Curr. Biol.* **7**, 500–509. **(3)** Genetic dissection of Itpr gene function (2004) *Genetics* **166**, 225–236. **(4)** Reduced odour responses from antennal neurons (2008) *J. Neurosci.* **28**, 4745–4755. **(5)** Intracellular calcium signalling and store operated Ca^{2+} entry are required in Drosophila neurons for flight (2009) *Proc. Natl. Acad. Sci. USA* **106**, 10326–10331.

Memberships: Fellow: INSA 2006 • Asia-Pacific Molecular Biology Network 2007.

Awards & Distinctions: Wellcome Trust Fellowship 82 • Rockefeller Biotechnology Career Fellowship 93.

Hasan, Kwaja Habib*

Elected: 1934
Specialization: Plant Sciences
Last Address: Government Industrial Laboratory, Narayanaguda, Hyderabad (Deccan), India
***Deceased**

Education: LAg, MSc, PhD.

Career: Government Industrial Laboratory, Hyderabad.

Hasnain, Seyed Ehtesham

Elected: 1995
Position: Vice Chancellor, Univ. of Hyderabad
Specialization: Functional Biology; Molecular Pathogenesis; Dissemination Dynamics of Human Pathogens particularly M. tuberculosis
Date and Place of Birth: 13 April 1954; Gaya, Bihar
Parents: S M Hasnain and Naushaba
Spouse and Children: Nasreen; two *d*
Address: University of Hyderabad, Hyderabad 500 046, India
Tel. (040) 2301 0121 (O), (040) 2419 3030 (R), Mobile: 98857 79951
email: seh@uohyd.ernet.in

Education: Magadh Univ.: BSc Hons 75; JNU: MSc 77, PhD 80.

Career: Delhi Univ.: Lecturer 80–82; Univ. of Alberta, Canada: Fellow 82–86; Texas A & M Univ.: Res. Assoc. 86–87; Inst. of Virology, UK: Vis. Sci. 88; NII: Staff Sci. 90–2003; CDFD: Dir 99–2005; JNCASR: Hon. Prof.; Inst. of Life Sci.: Hon. Distinguished Res. Prof. ; Univ. of Hyderabad: Vice-Chancellor 2005–.

Scientific Work: Made an outstanding contributions as an independent investigator, in basic biology of the baculovirus gene expression system, molecular pathogenesis, and genetic analysis of polymorphism. A modified version of the candidate vaccine against *Plasmodium falciparum* malaria, developed in partnership with CDC, Atlanta, has been funded by Bill Gates Foundation for large scale vaccine trial. Other collaborations include molecular genetics of childhood blindness and development of diagnostic markers. Studies on molecular typing of tuberculosis bacteria have direct human health applications and are already beginning to contribute towards better management of multi-drug resistance tuberculosis. The functional biology component of research on TB has provided new insights on the understanding of unknown open reading frames (ORFs), including those coded by the PE/PPE family of proteins.

Important Publications: **(1)** Genomic fluidity of pathogenic bacteria: Applications in diagnostics, molecular epidemiology, disease biology and intervention strategies (2008) *Nature Rev. Microbiol.* **6** 387–394 **(2)** Molecular analysis of a leprosy immunotherapeutic bacillus provides insights into *Mycobacterium* evolution (2007) *PLOS One* **3** (2, 10) 2968. **(3)** Hydrogen peroxide inhibits IL-12 p40 induction in macrophages by inhibiting c-rel translocation to the nucleus through activation of calmodulin protein (2006) *Blood* **107**, 1513–1520 **(4)** Leptospirosis: An epidemiologic, genomic and evolutionary perspective (2004). *The Lancet: Infectious diseases* **4**, 543. **(5)** Regions of high antigenicity within the hypothetical PPE_MPTR Rv2608 ORF show a differential humoral response and a low T cell response in various categories of TB patients (2004) *J. Infectious Diseases* **190,** 1237–1244.

Memberships: Fellow: NASI 92; INSA 99; TWAS 99 • Member: Scientific Advisory Council to the Prime Minister of India; National Police Mission; National Book Trust; International Advisory Committee; National EuroPatho-Genomics Network of Excellence (NoE-EPG), Germany 2006; Guha Res. Conf. 91 • President: Indian Soc. of Cell Biol. 92.

Awards & Distinctions: Padma Shri • Humboldt Research Award • J C Bose Fellow • S S Bhatnagar Prize • G D Birla Award • Ranbaxy Research Award • Golden Jubilee Biotechnology Fellowship Award • Nitya Anand Endowment Lecture for Biomedical Research • Om Prakash Bhasin Award • Goyal Award.

Hattiangdi, Gopal Shankar*

Elected: 1963
Specialization: Colloid Science; Industrial Chemistry
Date and Place of Birth: 15 December 1921; Bombay, Maharashtra
Parents: Shankar Rau Hattiangdi and Umabai
Spouse and Children: Mira; one *s*, one *d*
Last Address: Vedic Workshop, 2, Laburnum Road, Bombay, 400 007, India
***Deceased:** 16 May 2003

Education: MSc, PhD, DPhil hc, DLitt hc; Univ. of Pasedena, USA: Diploma in Bible Study 88.

Career: Univ. of Bombay: Res. Scholar 43–45; Univ. of South California: Res. Asst 47–48; US Office of Naval Res.: Res. Asst 47–48; US National Bureau of Standards: Guest Worker 48–49.

Scientific Work: Employed X-ray diffraction, electron microscopy, differential thermal analysis, and other sophisticated techniques in research work. Well known for work on the properties and behaviour of systems of alkali and heavy metal soaps in organic solvents and for X-ray and electron microscope studies of lubricating greases, soaps and soapiess detergents. Also original contributions in the fields of non-edible oils, utilization of perfume-bearing materials and the nutritive value, vitamination and colouration of vanaspati.

Memberships: Member: Sigma Xi 48 • Fellow: Indian Chemical Soc.; Bureau of Indian Standards.

Awards & Distinctions: Dr Samuel Hahnemann Medal, USA 64 • Dr K L Moudgill Prize and Citation 64 • Gold Maple Leaf Pin, Canada 90 • Sanskrit title – *Mahamahopadhyaya*, India 94.

Hegde, Manjanath Subraya

Elected: 1997
Position: Prof., IISc, Bangalore
Specialization: Electron Spectroscopy of Molecules and Solids; High Temperature Superconductivity; Thin Films; Solid State Chemistry; Catalysis
Date and Place of Birth: 1 June 1945; Kumta, Karnataka
Parents: Hegde Subraya Ramakrishna and Yanku
Spouse and Children: Malati; one *d*
Address: Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2614 (O), (080) 2341 4573 (R)
email: mshegde@sscu.iisc.ernet.in

Education: Karnatak Univ.: BSc 66, MSc 68; IIT Kanpur: PhD 76.

Career: JCBM College, Sringeri: Lecturer 68–70; IISc, Bangalore: Res. Assoc. 77–78, Lecturer 78–83, Asst Prof. 83–89, Assoc. Prof. 89–95, Prof. 95–; Rutgers Univ., USA: Vis. Asst Prof. 88–89.

Scientific Work: Fabricated electron spectrometers (UVPES and EELS) and studied electronic structures of a large number of molecular complexes. Contributed extensively on XPS of solids and surfaces and identified O^1 on the surface spectroscopically. Deposited $YBa_2CU_3O_7$ film and a variety of epitaxial oxide films have been made by pulsed laser deposition. This led to the fabrication of Josephson junction with $LaNiO_3$ as the metallic normal metal barrier with YBCO. Made new giant magnetic resistance (GMR) materials and epitaxial films showing over 90% GMR. Synthesized a large number of oxide and nitrides and they have been proved to be good catalysts by employing an on-line gas-solid interaction (TDS) system fabricated in the lab. Fabricated a TGA at 1/5th the cost of commercial instruments and used it for the study of solids.

Awards & Distinctions: MRSI Medal.

Hill, A R Berkely*

Elected: 1934
Date and Place of Birth: 22 December 1879
Last Address: European Mental Hospital, Ranchi, India
***Deceased:** 16 August 1944

Education: Rugby and Oxford: MA, MD (Oxon).

Career: IMS: 1907–34; European Mental Hospital, Ranchi: Superintendent of the European Asylum 34–46

Important Publications: *Collected Papers* (1933) The Book Company Ltd, Calcutta, 308 pp.

Memberships: Founder Member: Indian Psychoanalytic Soc. 22; American Psycho-Analytical Assn.

Hosur, Ramakrishna Vijayacharya

Elected: 1994
Position: Sr Prof., TIFR, Mumbai
Specialization: Structural Biology; NMR Spectroscopy; Protein Folding
Date and Place of Birth: 16 May 1953; Dharwad, Karnataka
Parents: Vijayacharya Hosur and Sudha V
Spouse and Children: Medhavini; one *s*, one *d* (Pavan, Kirti)
Address: Department of Chemical Sciences, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2488 (O), (022) 2280 4635, (R), Mobile: 99870 51556
email: hosur@tifr.res.in, hosur53@gmail.com; URL: www.tifr.res.in/~hosur

Education: Karnataka Univ.: BSc 71; IIT, Bombay: MSc 73; Bombay Univ.: PhD 78.

Career: TIFR, Bombay: Res. Assoc. 78–80, Fellow 80–85, Reader 85–91, Assoc. Prof. 91–96, Prof. 96–2003, Sr Prof. 2003–.

Scientific Work: Developed methodologies and software for accurate determination of solution conformations of nucleic acids by NMR spectroscopy. Developed a new class of techniques called 'scaling techniques' in two- and three-dimensional NMR for enhancing resolution and sensitivity in the spectra. Developed new triple resonance techniques called HNN and HN (C) N suite of experiments for protein NMR. Discovered A-, T-, C-tetrad motifs in DNA quadruplex structures. Elucidated folding energy landscapes of proteins. Elucidated the association pathway of the largest protein self assembly (> 5 Mda) till date.

Important Publications: **(1)** NMR studies on truncated sequences of human telomeric DNA: Observation of a novel A-tetrad (1999) *Nucl. Acids. Res.* **27**, 3836–3843. **(2)** Improved 3D triple resonance experiments, HNN and HN (C) N, for HN and 15N sequential correlations in labelled proteins. Application to unfolded proteins (2001) *J. Biomol. NMR* **20**, 135–147. **(3)** An efficient high throughput resonance assignment procedure for structural genomics and protein folding research by NMR (2001) *Biochemistry* **40**, 14727–14735. **(4)** Residue Level NMR View of the urea driven equilibrium folding transition of SUMO-1 (1–97): Native preferences do not increase monotonously (2006) *J. Mol. Biol.* **361**, 180–194. **(5)** NMR insights into a megadalton-sized protein self-assembly (2008) *Protein Science* **17**, 1319–1325.

Memberships: Fellow: INSA 95; NASI 97; TWAS 2008; Indian Biophysical Soc.; Natl Magnetic Resonance Soc.; Soc. of Biological Chemists of India; American Chemical Soc.; Chemical Res. Soc. India; Soc. Cancer Research; Soc. for Scientific Values • President: Indian Biophysical Soc.; Natl Magnetic Resonance Soc.

Awards & Distinctions: Bruker Young Scientist Award 83 • INSA Young Scientist Medal 84 • IASC Assoc. 85–88 • B D Tilak Lecture Award 89 • B M Birla Award 92 • R K Asundi Memorial Lecture Award 98 • Jagdish Shankar Memorial Lecture Award 2003 • 3rd Annual Award, Soc. for Cancer Research 98 • CSIR Foundation Day Lectures at IICB, Kolkata 2004 and RRL, Trivandrum 2006 • J C Bose Fellowship 2007.

Howard, Sir Henry George*

Elected: 1934
Date of Birth: 5 October 1883
Parents: Henry Thomas Howard and Harriet Kate Gestsell
Spouse: Olga Alexandra Weston
Last Address: 27, Rosslyn Hall, NW3, UK
***Deceased**

Education: CIE 35, MC, MIFE, M Inst. CE.

Career: Govt of Madras, Madras: Chief Electrical Engineer.

Scientific Work: Associated as engineer with large hydroelectric systems in North and South America and India.

Huzurbazar, Vasant Shankar*

Elected: 1961
Specialization: Mathematical Statistics; Probability Theory; Mathematical Logics
Date and Place of Birth: 15 September 1919; Kolhapur, Maharashtra
Parents: Shankar Abaji and Ganga
Spouse and Children: Prabha; two *d*
Last Address: University of Denver, USA
***Deceased:** 15 November 1991

Education: Univ. of Bombay: BS Hons 40; BHU: MA 41; Univ. of Cambridge, UK: PhD 49.

Career: Rajaram College, Kolhapur: Lecturer in Maths 42–46; Univ. of Cambridge, UK: Res. Scholar 46–49; Gauhati Univ.: Reader in Maths and Statistics 49–50; Bureau of Economics and Statistics: Sampling Expert 50–52; Lucknow Univ.: Reader in Statistics 52–53; Univ. of Poona, Dept of Maths and Statistics: Sr Prof. and Head 53–79; Iowa State Univ., USA: Fulbright Vis. Prof. 62–64; Univ. of Manitoba, USA: 76–79; Univ. of Denver, USA: Prof. 79–91.

Scientific Work: Made a famous conjecture that, for independent and identically distributed random variables X_1, X_2 & X_n with a distribution depending on an unknown parameter theta, a statistic is globally sufficient for theta as soon as its conditional distribution given X_i is independent of theta for each i.

Important Publications: *Sufficient statistics* (1976) Marcel Dekker, New York.

Memberships: Fellow: INSA 57 • Member: Intl Statistical Inst. • President: Indian Statistical Assn; American Statistical Assn; Indian Science Congress.

Awards & Distinctions: Padma Bhushan 74.

Ila, Hiriyakkanavar

Elected: 1991
Position: Prof., Principal Adviser, Jubilant Biosys Ltd, Bangalore
Specialization: Organometallic Chemistry; Synthetic Organic Chemistry
Date of Birth: 11 September 1944, Mathura, Uttar Pradash
Spouse and Children: H Junjappa; one *d* (Deepali)
Address: 002, Block VIII, Heritage Estate, Yelhanka, Bangalore 560 064, India
Tel. (080) 6662 8669 (O), (080) 2366 4357 (R), Mobile: 99019 96421
email: hila@iitk.ac.in

Education: Univ. of Gorakhpur: BSc 62; Univ. of Agra: MSc 64; IIT, Kanpur: PhD 68.

Career: CDRI: Sci. 70–77; NEHU, Shillong, Dept of Chem.: Lecturer 77–78, Reader 78–86, Prof. 86–96; IIT Kanpur: Prof. 96–2006; Jubilant Biosys, Bangalore, Prin. Adv. 2007–; Inst. fur Organische Chemie, Univ. Munich, Germany: Alexander von Humboldt Fellow 84–86.

Scientific Work: The polarized ketene dithioacetals and the corresponding N, S-, N, N-acetals, a class of highly functionalized substrates have been demonstrated as extremely versatile group of three carbon synthons with 1, 3-electrophilic centres and also as two carbon synthons with one electrophilic and one nucleophilic centres. First systematic study of the reactivity pattern of these versatile group of intermediates, which resulted in numerous useful synthetic transformations. Further by controlled manipulation or reaction conditions, these intermediates have been shown to be useful precursors for alkylthio, amino and alkoxy-heterocycles. A systematic study of synthetic transformation of these intermediates has led to several new methods for a variety of heterocycles i.e. aminopyrazoles, aminoisoxazoles, aminopyrimidines, aminopyridones aminopyrones, thiazoles, tetrazoles and several condensed heterocycles. This highly productive area of research has not only been of great synthetic potential for varied heterocyclic and carbocyclic compounds, it ensures further many novel chemical transformations in natural product chemistry that are currently being investigated.

Important Publications: **(1)** A novel anionic domino process for the synthesis of o-cyanomethyl-methylthio/alkyl/aryl/heteroaryl acetylenes (2008) *Org. Lett.* **10**, 965–968. **(2)** Domino carbocationic rearrangement of (bismethylthio) methylene-alkyl-2-(3/2-indolyl-cyclopropyl ketones (2007) *J. Org. Chem.* **72**, 1388–1394. **(3)** Aromatic and heteroaromatic annulation, progress in heterocyclic chemistry (2001) **13**, Ch.1, 1–24. **(4)** Heteroannulation of nitroketene N_1, S-arylaminoacetals with POC13: A novel highly regio selective synthesis of unsymmetrical 2, 3-substituted quinoxalines (2005) *Org. Lett.* **7**, 2169–2172. **(5)** A new route to spiropyrrodinyl-oxindole alkaloids via iodide ion induced rearrangement of (N-aziridinomethylthio)-methylene-2-oxindoles (2001) *Org. Lett.* **3**, 4193–4196.

Memberships: Fellow: INSA 2002.

Awards & Distinctions: CRSI Silver Medal • Astra Zeneca Technol. Innovation Award • A V Rama Rao Prize.

Indira Nath

Elected: 1988
Position: Prof., Inst. of Pathology, New Delhi
Specialization: Immunology; Leprosy; Pathology
Date and Place of Birth: 14 January 1938; Guntur, Andhra Pradesh
Parents: N V Rao and Nagalaxmi
Spouse and Children: Rajeshwar Nath; one *d* (Deepa)
Address: Institute of Pathology (ICMR), Safdargung Campus, New Delhi, 110 016
Res: 707, Sarvapriya Apartments, Sarvapriya Vihar, New Delhi 110016, India
Tel. (011) 2651 7707 (O), 2610 0754 (R), Mobile: 97171 04448
email: indiranath@gmail.com

Education: AIIMS, New Delhi: MBBS 61, MD 69; R. Coll. of Path., UK: MRC Path 83.

Career: UK: House Surgeons in Surgery, Pathology and Registrar in Pathology, Tutor in Pathology 69–70; Nuffield Travelling Fellow 70–71; Royal College of Physicians, London 70–71; AIIMS, New Delhi: Dept. of Biochem.: Lecturer 72–80; Dept. of Pathology: Asst. Prof. 80–86, Assoc. Prof. 86–87; Dept of Biotechnol.: Prof. 87–2006, Sr Prof. 97–; S N Bose Res Prof. 98–2003; Dr Ambedkar Ctr Biomed. Sci., New Delhi: 96–; Inst. of Pathology, New Delhi: Ramanna Fellow 2009; Asian Inst. of Med. Sciences and Technol., Malaysia: Dean 2004–05; Blue Peter Res. Centre, Hyderabad: Dir 2006–08.

Scientific Work: Elucidated the complex regulatory mechanisms involved in the immunological unresponsiveness in leprosy, using the natural disease in the human as a model. It was shown that stable forms of lepromatous leprosy showed antigen specific anergy due to suppressor factors, such as prostaglandin E, leukotrieves and IL$_{10}$ released by macrophages, and cytokine network regulation defects. The episodic reactions of Erythema Nodosum Leprosum in the same clinical type of leprosy showed on the other hand, the emergence of T cell activity in hitherto unresponsive individuals. Ip 10 was a strong biomarker of type 1 reactions. Ultrasonography was shown to be an noninvasive useful tool for diagnosis of neuritis. In addition, using DNA technology, a unique recombinant antigen LSR of the pathogen was cloned. The aminoacid sequence of this protein had motifs uniquely recognized by the reactional leprosy patients who were shown to have antibodies recognizing the RGD GVTY and NAA motifs. In order to reverse the unresponsiveness in anergic patients, recombinant, cytokine, Interferon gamma was used effectively to rapidly reduce bacilli in leprosy patients. New radiometric assays were developed to rapidly screen for drug resistance and sensitivity. VNTRs of the pathogen are being studied to understand continuing transmission of disease.

Important Publications: **(1)** Lower touch sensibility in the extremities of healthy Indians: further deterioration with age (2007) *PLOS Neglected Diseases* (Aug 11 2009 online). **(2)** Recombinant protein identified by lepromatous sera mimics native *M. leprae* in T cell responses across the leprosy spectrum (1991) *Proc. Natl. Acad. Sci.* (USA) **88**, 1054–1058. **(3)** Effects of multiple interferon γ injections on the disposal of *Mycobacterium leprae* (1989) *Proc. Natl. Acad. Sci.* (USA) **86**, 8073–8077. **(4)** Monocyte derived soluble suppressor factor(s) in patients with lepromatous leprosy (1983) *Infect. Immun.* **42**, 890–899. **(5)** Factors influencing the incorporation of ^{3}H-thymidine in *Mycobacterium leprae* (1981) *J. Med. Microbial.* **14**, 279–293. **(6)** Natural suppressor cells in human leprosy: The role of HLA-D identical peripheral lymphocytes and macrophages in the *in vitro* modulation of lymphoproliferative responses (1980) *Clin. Exp. Immunol.* **42**, 203–210.

Memberships: Fellow: Royal College of Pathology; NASI 90; INSA 91; NAMS 92; TWAS 95.

Awards & Distinctions: S S Bhatnagar Prize 83 • Kshanika Oration Award of ICMR 84 • Om Prakash Bhasin Foundation Award 90 • R. Coll. of Path., UK: DSc(hc) 2003 • ICMR Basanti Devi Amir Chand Prize 94 • Rameshwardas Birla Smarak Kosh Natl Award 95 • Cochran Research Award 99 • Padma Shri 99 • L'oreal-UNESCO Women in Science 2002 for Asia Pacific • Chevalier Ordre National du Merite 2003 • Raman Fellowship, DST 2009.

Iqbal, Javed

Elected: 1995
Position: Dir, Inst. of Life Sciences, Hyderabad
Specialization: Medicinal Chemistry; Drug Design and Discovery; Organometallic Chemistry; Catalysis
Date and Place of Birth: 28 June 1947; Allahabad
Parents: Iqbal Uddin and Anis Fatma
Spouse and Children: Roshnak; one *s*, one *d*
Address: Institute of Life Sciences, University of Hyderabad Campus, Gachibowli,
Hyderabad 500 046, India
Tel. (040) 6657 1571, 6657 1500 (O), (040) 2419 3132 (R), Mobile: 98497 99444
email: javediqbaldrf@hotmail.com, jiqbal@ilsresearch.org; URL: www.ilsresearch.org

Education: Agra Univ.: BSc 68, MSc 72; Delhi Univ.: PhD 77.

Career: Deshbandhu College, Delhi Univ.: Lecturer 77–78; Ranbaxy Laboratories, Res. Dn: Group Leader 79–80; Cambridge Univ.: Postdoc Fellow 78–79; Oxford Univ. Dept of Chem.: Fellow 82–83; Univ. of Montpellier, France: Lecturer 83–84; IIT Kanpur: Lecturer 87-88, Asst Prof. 87–91, Assoc. Prof. 91– , Prof. 91; Dr Reddy's Laboratories Ltd, Hyderabad: Global Head, Discovery Chem., Discovery Res. 2000–07; Regional Res. Lab. (CSIR), Trivandrum: Dir 2001–02; Inst. Life. Sci.: Dir 2007–.

Scientific Work: Contributed significantly in the area of catalysis in organic synthesis and synthesis of natural products. Seminal contribution using cobalt catalysed reactions in organic synthesis has made great impact as new synthetic methodology. Research activities focussed around development of new catalysts based on cobalt leading to a versatile oxidation reaction using molecular oxygen. These cobalt catalysts were very effective in the epoxidation of alkenes and they were shown to have widespread utility in organic chemistry. Has researched extensively on peptidomimetics as novel therapeutic agents. Research group also worked on mimics of protein motifs by synthesizing small-turns or helical structures. Contributed significantly to new drug discovery in the area of diabetes, cancer and infectious diseases. Research activities at DRL involved design and synthesis of small molecules to modulate disease targets like PPAR, AMPK, JNK, Raf and Aurora kinases. Two of the drugs discovered DRL are undergoing phase I clinical trials in Canada and UK.

Important Publications: **(1)** Synthesis of conformationally constrained analogues of linezolid: Structure-activity relationship (SAR) studies on selected novel tricyclic oxazolidinones (2002) *J. Med. Chem.* **45** (18) 3953–3962. **(2)** Reverse turn induced pi-facial selectivity during polyaniline-supported cobalt (II) salen catalysed aerobic epoxidation of n-cinnamoyl L-proline derived peptides (2003) *J. Org. Chem.* **68** (5) 1679–1692. **(3)** Recent advances in transition metal catalyzed oxidation of organic substrates with molecular oxygen (2005) *J. Chem. Rev.* **105** (6) 2329–2364. **(4)** Palladium(0)-catalysed regioselective synthesis of alpha-dehydro-beta-amino esters from amines and allyl acetates: Synthesis of a alpha-dehydro-beta-amino acid derived cyclic peptide as a constrained beta-turn mimic (2002) *J. Org. Chem.* **67** (22) 7852–7857. **(5)** Cobalt(II)-catalysed conversion of allylic alcohols/acetates to allylic amides in the presence of nitriles (1995) *J. Org. Chem.* **60** (9) 2670–2676.

Memberships: Fellow: INSA 2001.

Awards & Distinctions: Vigyan Gaurav Award, Govt of UP.

Irani, Jamshed Jiji

Elected: 1975
Position: Dir, Tata Sons Ltd
Specialization: Iron and Steel Making
Date and Place of Birth: 1936; Nagpur
Parents: Jiji Dhanjibhoy Irani, Kharshed
Spouse and Children: Daisy; one *s*; one *d*
Address: Tata Sons Limited, Bombay House, 24, Homi Modi Street, Mumbai 400 001, India
Tel. (022) 6665 8015, (022) 6665 7565 (O), (022) 6635 2000 (R)
email: jjirani@tata.com; URL: http://www.tata.com/

Education: Nagpur Univ. : BSc 56, MSc 58; Univ. of Sheffield, UK: MMet 60, PhD 63.

Career: British Iron & Steel Res. Assoc., Sheffield: 63–67; TISCO, Jamshedpur: Sr Sci. Offr 63, Sec. Head Metallurgy Dn 65–67, Asst Dir 68, General Manager (Operations) 79, Dy Managing Dir 81, Vice-President 83, President 85, Managing Dir 92–2001; Indian Inst. of Metals, All India Management Assn: President 88–89; CII President 91–92, Chmn TRL, TRF, KNP; HDFC, Tata Steel, Tata Motors, BOC, ECL, REPRO: Dir.

Scientific Work: Responsible for the development of weathering steel, Mn-V-N steel and columbium steel which have been taken up for regular production at TISCO. Developed an alternative core production method at TISCO. Involved in the total quality movement and value engineering and is spearheading the efforts being made to spread a new quality culture in TISCO and elswhere.

Memberships: Royal Acad. Engineering, London.

Awards & Distinctions: Metallurgist of the Year Award 74 • Platinum Medal, Indian Institute of Metals 88 • Steelman of the Year Award 90 • Hon. Knighthood (KBE) 97 • Inaugural National Metallurgist Award, Ministry of Steel and Mines 97 • 12th Willy Korf Steel Vision Award, The World Steel Dynamics and American Metal Market New York 2001 • Lifetime Contribution Award in Engineering, Indian National Acad. of Engineering 2002 • JRD Tata Corporate Leadership Award, All India Management Assn 2003 • Padma Bhushan 2007 • Lifetime Achievement Award, Ministry of Steel 2007.

Ishaq, Mohammed*

Elected: 1941
Specialization: Molecular Spectroscopy
Date of Birth: 1 April 1901
Last Address: 21, Cooper Road, Lahore, West Pakistan
***Deceased:** 22 March 1960

Education: Aligarh Univ.: MA 25, MSc 27; Univ. of London: PhD 36.

Career: Pakistan Military Acad., Kakul, North West Fronter Province.

Iyengar, B N*

Elected: 1935
Last Address: Government of Mysore, Bangalore, India
***Deceased**

Career: Government of Mysore, Bangalore: Dir of Agriculture.

Important Publications: Agricultural Education in India (1934) *Curr. Sci.* **3**, 81.

Iyengar, K R K*

Elected: 1934
Specialization: Medicine
Last Address: Pasteur Institute, Coonoor, India
***Deceased:** 20 July 1947

Education: IMS.

Career: Pasteur Inst., Coonoor: Dir 28–38, 41–46.

Scientific Work: Early work was on the Wassermann reaction on Indians with special reference to diseases like malaria, kala azar, tuberculosis and leprosy. Other contributions were in the field of immunity. Studied in detail the preparation and reaping properties of vaccines and the degree and duration of immunity following their administration.

Important Publications: Dessicated nutrient media (1921–22) *Indian J. Med. Res.* **9**, 364–368.

Awards & Distinctions: Awarded OBE 39, CIE 45.

Iyengar, Kombur Sesha Kuppuswamy*

Elected: 1934
Specialization: Mathematics
Date of Birth: 29 August 1899
Last Address: Department of Maths, University of Mysore, Mysore, India
***Deceased:** 23 June 1944

Education: Presidency College, Madras: BA Hons 20; Univ. of Cambridge, UK: Maths Tripos.

Career: Univ. of Cambridge, UK: 20–25; Univ. of Mysore, Dept of Maths: Head 26.

Scientific Work: Published important results on sequences and series, summability and Tauberian theorems, normal orthogonal sets, derivatives of a function, integral functions, geometrical problems and mathematical aspects of the Bhabha–Heitler cascade theory of cosmic rays. Papers dealing with summability are characteristic of his zeal for generalization and contain many well-known theories of Hardy and Littlewood as particular cases. Three connected papers on linear transformations of bounded sequences offer a penetrating study. Paper on exact solution consists of rigorous proofs for the existence of solutions of a type of differential equations and are indicative of an analyst of high calibre.

Memberships: Fellow: Cambridge Philosophical Soc.; Indian Maths Soc.; London Maths Soc.; American Maths Soc.

Iyengar, Mandayam Osuri Parthasarathy*

Elected: 1934
Specialization: Algology
Date and Place of Birth: 15 December 1886, Madras
Parents: M O Alasingaracharya and Alamelu Ammal
Spouse and Children: Janaki Ammal; five *s*, one *d*
Last Address: Department of Botany, University of Madras, Madras, India
***Deceased:** 10 December 1963

Education: Univ. of Madras: BA 1906, MA 1909; Univ. of London: PhD 1932.

Career: Madras Museum: Curator in Botany 1909; Teachers College, Madras: Head of Natural Sci. 11–20; Presidency College, Madras: Prof. of Botany 20–33; Univ. of Madras: Dir of Univ. Bot. Lab 33–44.

Scientific Work: Main forte was collection of algae from far and wide. Described many new species and erected a number of new genera typical of tropical situations. Chief contribution to the origin and evolution of plant life was in the creation of the genus *Fritschiella*. Pioneer in the study of lakes and large bodies of water, algal flora, algal blooms, paddy-field algae, algae of estuarine regions, algae in relation to aquatic animals, etc.

Memberships: Fellow; London Linnaean Soc.; INSA 35 • President: Indian Botanical Soc.

Iyengar, Nugehalli Keshava*

Elected: 1955
Specialization: Forensic Science
Date and Place of Birth: 29 July 1910; Bangalore, Karnataka
Parents: N G Lakshminarasimha Iyengar and Alamelamma
Spouse and Children: Leila; one *s*, two *d*
Last Address: Keshava Nivas, 104/1, 6th Main Road, Malleswaram, Bangalore 560 003, India
***Deceased:** 29 November 1970

Education: Bangalore Univ.: BSc 30; Bombay Univ.: MSc 33; Calcutta Univ.: DPhil 40; Banting Res. Inst., Toronto Univ., Canada: Vincent Massey Scholarship holder 39.

Career: IISc, Bangalore, Biochemistry Dept: Res. Scholar 30–33; Madras Custom House, Spurious Drugs Control Dept.: Chief Chemist 34–37; All India Inst., of Health and Hygiene and School of Tropical Medicine: Biochemist 37–39; Central Forensic Sci. Inst., Calcutta: Dir 57–70.

Scientific Work: Published papers on biological products, drugs, their analysis and standardization, insulin research problems and vitamins and hormones, immunology, pathology and toxicology problems. Experience of physiology and nutrition have been referred to by scientists in India and abroad.

Memberships: Member: INTERPOL, USA • Fellow: Indian Acad. of Forensic Sci.

Iyengar, Padmanabha Krishnagopala

Elected: 1969
Specialization: Solid State Physics; Nuclear Physics; Nuclear Engineering; National Security
Date and Place of Birth: 29 June 1931; Trivandrum, Kerala
Parents: Padmanabha and Lakshmi
Spouse and Children: Seetha; one *s*, one *d* (Srinivas, Suchitra)
Address: 33, Saras Baug, Sion-Trombay Road, Deonar, Mumbai 400 088, India
Tel. (022) 2552 9033 (R)
email: pk.iyengar@mtnl.net.in

Education: Univ. of Travancore: BSc 50, MSc 52; Univ. of Bombay: PhD 63.

Career: TIFR, Bombay: Res. Asst 52–55; BARC, Bombay: Sci. Offr. 55–65, Head Nuclear Phys. Dn 65–72, Phys. Group: Dir 72–84; BARC: Dir 84–90; AEC: Member 84–98; Chmn, Atomic Energy Commission & Secretary, Govt of India, Dept of Atomic Energy 90–93; Govt of Kerala: Scientific Adviser 94–97.

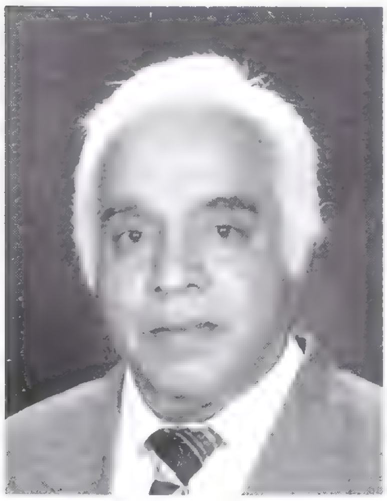
Scientific Work: Made several original contributions in lattice dynamics, magnetism and atomic motions in condensed matter by neutron scattering. Contributed to the study of magnetism by Mossbauer effect. Built the first plutonium based fast-reactor *Purnima* in 1972 and contributed in planning and conducting the Pokhran nuclear explosion experiment in 1974. Organized R & D in atomic energy as Director of BARC and Secretary Dept of Atomic Energy.

Important Publications: **(1)** Normal modes of germanium by neutron spectroscopy (1958) *Phys. Rev.* **111**, 747. **(2)** Crystal diffraction techniques (1965) *Thermal neutron scattering,* Academic Press, London, pp. 97. **(3)** *Introduction to Mössbauer spectroscopy* (1983) Elsevier Scientific Publishing Company, Amsterdam. **(4)** *Impact of nuclear research on the future technology of nuclear power* (1979) Shri Ram Institute for Industrial Research, Delhi. **(5)** *Nuclear Power: Policy and Prospects: India* (1987) Wiley-Interscience Publication, John Wiley and Sons.

Memberships: Fellow: INSA 76; Maharashtra Acad. of Sci.; NASI.

Awards & Distinctions: S S Bhatnagar Prize 71 • Padma Bhushan 75 • Kerala Government Sci. and Technol. Award 78 • FICCI Award 81 • Raman Centenary Medal 88 • INSA Homi Bhabha Medal 90 • IPA R D Birla Memorial Medal 92 • Jawaharlal Nehru Birth Centenary Award 93 • Homi Bhabha Medal of Indian Science Congress Assn 2006.

Iyengar, Rangachar Narayana



Elected: 1990
Position: Raja Ramanna Fellow; Dir, Ctr for Disaster Mitigation, Jain Univ.
Specialization: Structural Dynamics; Earthquake Engineering; Applied Stochastics; Rainfall Studies; History of Science
Date and Place of Birth: 2 June 1943; Tumkur, Karnataka
Parents: S Rangachar and Padmasini
Spouse and Children: N Vijayanthi; one *s*, two *d* (Sudarshan, Kripa, Priya)
Address: Centre for Disaster Mitigation, Jain University, Jain International Campus, Jakkasandra Post,
Kanakapura Road, Bangalore 562 112, India
Tel. (080) 2757 7203 (O), (080) 2671 1119 (R), Mobile: 98800 30082
email: rniyengar@jaingroup.info, aareni@yahoo.com; URL: http://civil.iisc.ernet.in/~rni/

Education: Mysore Univ.: BE 62, MSc 66; IISc, Bangalore: PhD 70.

Career: IISc, Bangalore: Lecturer 69–74, Asst Prof. 74–81, Assoc. Prof. 81–86, Prof. 86–94, KSIDC Chair Prof. 2002–05, Raja Ramanna Fellow 2005–08; Purdue Univ., USA, Dept of Aeronautics & Engg Sci.: Vis. Asst Prof. 70–71; Brooklyn Polytechnic, USA, Dept of Electrical Engg.: Vis. Scholar 71; Columbia Univ., USA, Dept of Civil Engg: Res. Asst 71; Univ. of Hannover, West Germany: Fellow 78–79, 80, 92; Central Building Res. Inst., Roorkee: Dir 94–2000.

Scientific Work: Developed direct and indirect stochastic process models for strong motion earthquake accelerograms. Proposed a new concept called critical stochastic excitations. Studied the probability distribution of the eigen values of stochastic strings and response of nonlinear systems under random inputs. Also proposed a stochastic characterization for chaos in nonlinear oscillators. A variety of practical vibration problems related to civil, aerospace, nuclear and railway engineering have been solved. Ground motion attenuation relations valid for Peninsular India have been proposed. Developed a novel analytical approach for mapping source region of earthquakes by inverting near source strong motion array data. Studied temporal and spatial variability of Indian monsoon rainfall data. Discovered some hitherto undetected predictability and variablity patterns. Developed a new method for forecasting seasonal rainfall through the technique of empirical mode decomposition. Carried out extensive research into Sanskrit literature to unearth information on ancient natural events such as floods, rainfall, earthquakes, comets and eclipses. The special number 3339 appearing in the *Rigveda* is shown to correspond with the 18 year eclipse period. Many facets of ancient Indian astronomy including comet observations have been identified for the first time.

Important Publications: **(1)** Study of random vibration of nonlinear systems by the Gaussian closure technique (1978) *J. Appl. Mech.* **45**, 393–398. **(2)** Higher order linearization in nonlinear random vibration (1988) *Intl. J. Nonlinear. Mech.* **23**, 5, 385–391. **(3)** Attenuation of strong ground motion in Peninsular India (2004) *Seismological Res. Lett.* **75**, 4, 530–540. **(4)** Intrinsic mode functions and a strategy for forecasting Indian monsoon rainfall (2004) *J. Met. Atmos. Phys.* **(5)** Profile of a natural disaster in ancient Sanskrit literature (2004) *Ind. J. Hist. Sci.* **39** (1) 11–49. **(6)** Archaic astronomy of Parashara and Vriddha Garga (2008) *Ind. J. Hist. Sci.* **43** (1) 1–27.

Memberships: Fellow: INAE 92; NASI 95; FGSI; Indian Nuclear Soc.; Indian Science Congress; Indian Soc. Earthquake Technology; Archaeological Soc. of India.

Awards & Distinctions: Distinguished Schmidt Visiting Chair, Florida Atlantic Univ., USA 95 • Visvesvaraya Award 95 • Shelter Promotion Council Award 96 • NRDC Technology Day Award 2001 • Narayanan Memorial Lecture Award, Acoustical Soc. India 96 • A K Sen Memorial Lecture Award, IIT Kharagpur 98.

Iyer, K S Padmanabha*

Elected: 1934
Last Address: Science College, Trivandrum, India
***Deceased**

Education: DSc.

Career: Science College, Trivandrum, Dept of Zoology: Prof.

Iyer, L K Ananthakrishna*

Elected: 1934
Specialization: Anthropology; Ethnology
Date and Place of Birth: 1861; Palghat, Kerala
Parents: L N Krishna Iyer and Subbalakshmi Ammal
Spouse and Children: Gangai Ammal; four *s*, four *d*
Last Address: Meteorological Office, Poona, India
***Deceased:** 26 February 1937

Education: Christian College, Madras: BA 1883.

Career: Revenue Settlement Office, Ootacamund: Clerk 1888–90; Victoria College, Palghat: Teacher 1890–97; Ernakulam College, Cochin: Asst Master 1897–1908; Cochin State: Superintendent of Ethnography 1902–20; State Museum, Cochin, Zoological Gardens and Industrial Bureau: Curator 14–20; Calcutta Univ., Dept of Anthropology: Head 20–33.

Scientific Work: Investigated the ethnography of one of the rare areas of the world in which conditions were ideally suited for the stratification of the different components of society. The extreme south of India, Kerala in particular, was a comparatively quiet area, highly favourable for a rare type of human stratification. The most primitive tribe or caste lay at the bottom of the social ladder and the successive layers rose tier-by-tier up to the highest caste at the top, each caste or tribe living its own life in peace completely isolated from those above or below it in the heirarchy. Such a situation is a veritable mine for the ethnologist to dig into the study objectively the effects of a long undisturbed condition on a society of distinct racial components.

Important Publications: **(1)** *Anthropology of the Syrian Christians* (1924). **(2)** *Mysore tribes and castes* (1924).

Memberships: Fellow: National Inst. of Science of India • President: Anthropology Sec. of Indian Sci. Congress.

Awards & Distinctions: Govt of India titles of Rao Bahadur 21; Dewan Bahadur 35; French Acad. of Sci. Offr d'Academie 35.

Iyer, M P Venkatarama*

Elected: 1935
Specialization: Colloid Chemistry
Date of Birth: 1902
Last Address: Central College, Bangalore, India
***Deceased:** 27 April 1936

Education: Univ. of Mysore: BSc 24; Calcutta Univ.: MSc.

Career: Central College, Bangalore, Dept of Chem.: Lecturer, Prof.; IISc, Bangalore: Research Chem.

Scientific Work: Work in electrometric studies on the formation and stability of colloids threw considerable light on the vexed question of the formation of basic salts.

Jacob John, Thekkekara

Elected: 1988
Specialization: Infectious Diseases; Virology
Date and Place of Birth: 4 December 1935; Alwaye, Kerala
Parents: Verghese John and Annamma
Spouse and Children: Anna; three s
Address: 439, Civil Supplies Godown Lane, Kamalakshipuram, Vellore 632 002, India
Tel. (0416) 226 7364 (R)
email: vlr_tjjohn@sancharnet.in; tjacobjohn@yahoo.co.in

Education: Univ. of Kerala: MBBS 59; Univ. of Edinburgh: MRCP 64; Univ. of Colorado, USA: MSc 66; Univ. of Madras: PhD 74.

Career: CMC and Hospital, Vellore, Dept of Microbiology and Virology: Lecturer 66–69, Reader 69–71, Assoc. Prof. 71–73, Prof. 73–97, Progr. Dir 86–97, Virology Dir 88–94; IAMM, Pune: Microbiologist 94; John Hopkins Univ., USA, School of Hygiene and Public Health: Sr Assoc. 87–89.

Scientific Work: Early work focussed on parainfluenza viruses and mycoplasma pneumonia. With both microbes discovered which were biological properties previously not recognised. Later attention was drawn to other paediatric viral infections. First virologist to recognize and document paralytic poliomyelitis as a result of 3-dose oral polio vaccine (OPV) failure. Identified the reason as inhibition of vaccine virus take in the intestines. Showed that easiest way to overcome the low vaccine efficacy was to give several sequential doses. Recommendation to give 5 doses for primary immunisation has now been universally accepted throughout developing countries. Recommendation to start OPV from the neonatal period also has been widely acclaimed. Pioneer investigator in defining and describing the epidemiology of several viral infections and diseases. First to demonstrate the urgent need and advantage of routine screening of donor blood for hepatitis B surface antigen. Recommendation has been universally accepted. First investigator to detect the presence of human immunodeficiency virus infection in India and also to describe the prevalences of HIV in risk groups over long periods of time; to detect infection among blood donors; and to describe the epidemiology of HIV infection and of AIDS in India.

Memberships: Fellow: American Acad. of Pediatrics 76; Indian Virological Soc. 85; NAMS; Royal College of Physicians; NASI 91; INSA 97.

Awards & Distinctions: S C Aggarwal Award 88 • B C Roy National Award 90.

Jacob, Kallarackel Thomas

Elected: 1989
Position: INAE Distinguished Prof., Hon. Prof. IISc
Specialization: Thermodynamics of Materials; Phase Equilibria; Materials Extraction and Synthesis; Solid State Sensors; Fuel Cells
Date and Place of Birth: 13 May 1944; Karanchira, Kerala
Parents: K Jacob Thomas
Spouse and Children: Moire Susan; 3 children
Address: Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2494 (O), (080) 2525 2765 (R), Mobile: 98454 79865
email: katob@materials.iisc.ernet.in; URL: http://www.met.iisc.ernet.in/faculty/ktj.html

Education: Mysore Univ.: BSc 64; IISc, Bangalore: BE 67; Univ. of London: PhD 70; Imperial College of Sci. & Technol., England: DIC 70; Univ. of London: DSc Engg 86.

Career: Univ. of Toronto, Canada: Postdoc Fellow 70-72, Sr Res. Assoc. 72-76, Special Lecturer 76-77, Asst Prof. 77-81, Assoc. Prof. 81–83; Lawrence Berkeley Lab., Materials & Molecular Res. Dn: Consultant 78–80, IISc: Prof. 83–2006, Hon. Prof. 2006–, INAE Disting. Prof. 2008–.

Scientific Work: Established links between thermodynamic properties and structure, thus laying the foundations for predictive models of complex metal and ceramic systems. Developed models that predict the behaviour of nonmetallic solutes in multicomponent alloys and Gibbs energy of spinel compounds and their solid solutions. Recently formulated a new function called thermodynamics capacity useful in materials synthesis. Developed new solid state probes for S_2, H_2S and SO_x and a new design for SOFC.

Important Publications: **(1)** Quasichemical equations for oxygen and sulphur in liquid binary alloys (1972) *Acta Metallurgica* **20**, 221–231. **(2)** The estimation of the thermodynamic properties of ternary alloys from binary data using the shortest distance composition path (1977) *Thermochim. Acta* **18**, 197–206. **(3)** Some studies on a solid state sulphur probe for coal gasification system (1978) *J. Electrochem. Soc.* **125**, 758–762. **(4)** A solid-state probe for SO_2/SO_3 based Na_2SO_4 electrolyte (1979) *J. Electrochem. Soc.* **126**, 1842–1847. **(5)** Technique for enhanced rare earth separation (2000) *Science* **289**, 2326–2329.

Memberships: Fellow: INSA 89; NASI 98; INAE 99; Minerals, Metals and Materials Soc. (TMS); Indian Inst. of Metals; US Natl Inst. of Ceramic Engineers; American Ceramic Soc. Inc; ASM Intl; Asia-Pacific Acad. Materials; Materials Res. Soc., India; Electrochemical Soc. Inc; Japan Inst. of Metals.

Awards & Distinctions: Syed Husain Zaheer Medal 2007 • MRSI Distinguished Materials Scientist Award, 2005 • GD Birla Gold Medal 2000 • INSA Brahm Prakash Memorial Medal 98 • IISc Rustom Choksi Award for Excellence in Research 97 • Extraction and Processing Science Award, TMS, USA 93 • Indranil Award, Mining, Geological and Metallurgical Institute of India 91 • National Metallurgist Prize; Ministry of Steel and Mines 86 • Hofmann Memorial Prize, Intl Consortium of Lead Producers 82.

Jacob, Thazhuthaveetil Mathai

Elected: 1976
Specialization: Synthetic Organic Chemistry; Molecular Biology; Immunology
Date and Place of Birth: 6 June 1927; Kaloor, Kerala
Parents: Mathai and Annamma
Spouse and Children: Rose; one *s*, four *d* (Mathew, Anita, Maya, Teresa, Suman)
Address: 51, 10th Cross, II Stage, West of Chord Road, Bangalore, India
Tel. (080) 2349 2759 (R)

Education: Univ. of Madras: BSc 49, BSc Hons MA 51; IISc, Bangalore: PhD 57.

Career: St. Joseph's College, Bangalore: Lecturer 51–52; IISc: Natl Res. Fellow 57–59, Sr Res. Fellow 66–68, Asst Prof. 68–75, Prof. 75–87; Univ. of Toronto: Res. Assoc. 59–60; Stevens Inst. of Technol., USA: Res. Assoc. 60–61; Univ. of Wisconsin, Enzyme Res. Inst., USA: Project Assoc. 61–64, Asst Prof. 64–66.

Scientific Work: As a member of Khorana's research group that deciphered the genetic code, developed methods for the chemical and subsequent enzymatic synthesis of DNAs and RNAs of known sequences. Established the involvement of the anticodon region of tRNAs in their aminoacylation. Antibodies specific to isopentenyl adenosine were used for the assay of cytokinins and for the isolation of tRNAs containing cytokinins. Antibodies raised against ribonucleoside, deoxyribonucleotide and oligonucleotide haptens were analysed for their antigenic determinants and specificity of interactions with DNA and its constituents. Discovered populations of anti-deoxyribonucleotide antibodies which bind to dsDNA with specificity for hapten sites situated at unique sequences. Demonstrated the binding of antideoxyribonucleotide antibodies to native human chromosomes.

Important Publications: **(1)** The synthesis of dodecanucleotides containing repeating trinucleotide sequence (1965) *J. Am. Chem. Soc.* **87**, 2971. **(2)** Synthetic deoxyribopolynucleotides as templates for ribonucleic acid polymerase (1964) *Proc. Natl Acad. Sci.* **52**, 1494. **(3)** The *in vitro* synthesis of homopeptides as directed by a ribopoly nucleotide containing a repeating trinucleotide sequence (1965) *J. Mol. Biol.* **13**, 283. **(4)** An analysis of the specificity pf anti-deoxyadenylate antibodies by a membrane binding technique (1973) *Biochem. Biophy. Acta* **331**, 41. **(5)** Base specific binding of deoxygnanylate and deoxycytidylate antibodies to double stranded DNA (1982) *Nucl. Acids Res.* **10**, 6273.

Memberships: Fellow: INSA 81.

Awards & Distinctions: Guha Research Medal 57.

Jadhav, Ganapatrao Vishamrao*

Elected: 1953
Specialization: Organic Chemistry
Date and Place of Birth: 12 April 1900; Baroda, Gujarat
Parents: Visharam Rao and Laxmibai
Spouse and Children: Saraswati; four *s*, four *d*
Last Address: 3, Subhadra Sadan, Block 3, Gokhale Road, Bombay 400 028, India
***Deceased:** 10 March 1980

Education: Bombay Univ.: BSc Hons, MSc 26; Univ. of Manchester: PhD 37.

Career: Inst. of Science, Bombay, Dept of Chem.: Lecturer 24–35, 42–44, Head Chem Dept 50–55; Ismail Yusuf College, Bombay: Lecturer 39–42, 44–47; Karnatak College, Dharwar: Prof. 47–50; Kirti College, Bombay: Prof. 56–68.

Scientific Work: Main work was on chalcone derivatives, coumarin and iso-coumarin derivatives. Also worked on substituted hydroxy quinoline derivatives.

Memberships: Fellow: Indian Chemical Soc.

Jagannathan, Naranamangalam Raghunathan

Elected: 2002
Position: Prof. and Head, Dept of NMR and MRI Facility, AIIMS, New Delhi
Specialization: Biophysics and Biomedical Application of Advanced Multinuclear and Multidimensional NMR Spectroscopy to Problems in Medicine; Biology; Chemistry; Physics and Biophysics, MRI and *in vivo* NMR Spectroscopy in Humans and Animals; Structural and Conformational Study of Biomolecules
Date and Place of Birth: 23 June 1954; Kuppam, Andhra Pradesh
Parents: N R Raghunathan and Mangalam
Spouse and Children: Gowri; two *d* (Kripa, Veena)
Address: Department of NMR & MRI Facility, All India Institute of Medical Sciences,
Ansari Nagar, New Delhi, India
Tel. (011) 2659 3253, (011) 2658 8533 (O), (011) 2659 4537 (R), Mobile: 99682 92774
email: nrjgi@yahoo.co.in; jagan1954@hotmail.com

Education: Madras Univ.: BSc 73, MSc 75, PhD 82.

Career: Univ. of British Columbia, Canada: Postdoc 82–86; IISc: Sr Sci. Offr 86–87; Colorado State Univ., USA: Post doc Assoc. 87–88, Univ. of Arkansas for Med. Sci., USA: Res. Assoc. 88–89; INSA Res. Fellow 90–92; Univ. of Madras: Lecturer 89–93; AIIMS: Asst Prof. 93–98; Assoc. Prof. 98, Prof. & Head 98–.

Scientific Work: Contribution is in multidisciplinary area of molecular imaging to study the biology, metabolism, function and physiology of diseases. Seminal contributions are in the area of MR of cancer. Choline from MR was shown to serve as diagnostic, prognostic and therapeutic response indicator of breast cancer. A method of early diagnosis of prostate cancer was demonstrated. Human brain cognitive functions using fMRI was initiated in India. A novel method to identify areas of sleep in conscious rats was developed using simultaneous electrophysiology and fMRI. Neuronal loss and deranged membrane metabolism in alcoholics was demonstrated using MRS. Reversal of abnormalities of myelination in human adult brain was documented by MRS after thyroxin therapy in congenital hypothyroidism. MR metabolomics in muscular dystrophies, cardiovascular diseases and spine abnormalities was demonstrated. Pathophysiology during de- and re-myelination of MS studied in an animal model using MR. Melatonin, adenosine and Aswagandha were evaluated for their neuroprotective property in animal model for stroke.

Important Publications: **(1)** Evaluation of total choline from *in vivo* volume localized proton MR spectroscopy and its response to neoadjuvant chemotherapy in locally advanced breast cancer (2001) *Br. J. Cancer* **84**, 1016–1022. **(2)** Reversal of abnormalities of myelination by thyroxine therapy in congenital hypothyroidism: Localized *in vivo* proton magnetic resonance (MRS) study (1998) *Dev. Brain Res.* **109**, 179–186. **(3)** Volume localized *in vivo* proton MR spectroscopy of breast carcinoma: Variation of W/F ratio in patients receiving chemotherapy (1998) *NMR Biomed.* **11**, 414–422. **(4)** Brain metabolite changes in alcoholism: An *in vivo* proton MRS study (1996) *Magn. Reson. Imaging* **14**, 553–557. **(5)** *In vivo* NMR spectroscopy of ^{7}Li in humans (1990) *Magn. Reson. Med.* **15**, 347–356.

Memberships: Fellow: NASI 2000; NAMS • Member: IUPAB Council 2008–11; • President: Indian Biophysical Soc. 2007–09

Awards & Distinctions: Bruker Young Scientist 93 • ISCA Platinum Jubilee Lecturer 2000.

Jagannathan, Venkataraman

Elected: 1974
Specialization: Biochemistry; Plant Tissue Culture
Date and Place of Birth: 15 June 1921; Tholuthoor, Tamil Nadu
Parents: N Venkataraman and Bhagirathi
Address: F-1, Kumar Classics, Aundh, Pune 411 007, India
Tel. (020) 2588 1959 (R)
email: hema1440@gmail.com

Education: Madras Univ.: BSc Hons 40; IISc: AIISc 45; Stanford Univ., US: PhD 49.

Career: Stanford Univ., USA: Govt Fellowship 46–49; Univ. of Wisconsin, USA, Inst. of Enzyme Res.: US Heart Foundation Fellowship 50–51; NIH and Univ. of Wisconsin, USA: Vis. Sci. 61–62; NCL, Pune: Sr Sci. Offr 51–57, Asst Dir and Head of Biochem. Dn 57–70, Dy Dir 70–79, Distinguished Sci. 79–81, Consultant 81–84; TERI, New Delhi, Dept of Biotechnol.: Head 85–92.

Scientific Work: Worked on the mechanism of action of phosphogluconase purification of pyruvic oxidase, presence of zinc in fungal aldolases, solubilization of hydrogenase, brain hexokinase, micropropagation of mature teak, eucalyptus, virus elimination from sugarcane by tissue culture, and micropropagation of several plantation crops, plant molecular biology and genetic transformation of Brassicas.

Memberships: Fellow: INSA 73; NASI 88 • Soc. of Biological Chemists; Plant Tissue Culture Assn, India.

Awards & Distinctions: Vasvik Award 78 • Om Prakash Bhasin Award 88 • IISc Distinguished Alumni Award.

Jain, Dharam Vir Singh

Elected: 1979
Position: Prof. Emeritus Dept Chem., Panjab Univ., Chandigarh
Specialization: Physical Chemistry; Theoretical Chemistry
Date and Place of Birth: 16 June 1933; Hansi, Haryana
Parents: Gopi Chand and M D Jain
Spouse and Children: Prem Lata; two *s* (Rakesh, Upesh)
Address: 1529, Sector 49-B, Pushpac Enclave, Chandigarh 160 047, India
Tel. (0172) 253 4415 (O), (0172) 263 2568
email: dvsjain@yahoo.com, dvsjain@pu.ac.in

Education: Delhi Univ.: BSc Hons 51, MSc 53; Univ. of S California: MS 56, PhD 58.

Career: Delhi Univ., Delhi: Lecturer in Chem. 58–63; Panjab Univ., Chandigarh, Chem. Dept: Reader 63–75, Prof. 75–96; Regional Sophisticated Instrumentation Centre: Dir 85–86, 92–94; Centre for Applied Wave Mechanics, France: Vis. Sci. 66; Commonwealth Academic Staff Fellow 71–72.

Scientific Work: Contributed to thermodynamic and transport properties of binary mixtures of short-chain *n*-alkanes. Several new generalizations have been put forward to predict the properties of binary mixtures from the properties of components and relate these properties to the size and shape of the molecules. Also studied the electronic spectra of organic molecules and properties of the molecules in the excited states. Has shown that short-range orientational contributions make important contributions in the solutions of alkyl benzenes and benzene. Also engaged in the application of microcalorimetry to problems of pharmaceutical interest. Has prepared some nanomaterials for use in catalysis.

Important Publications: **(1)** Catalytic behaviour of nickel nanoparticles stabilized by lower alkyl ammonium bromide in aqueous medium (2007) *App. Catal. A: Gen* **323**, 51. **(2)** Kinetic studies of the degradation of an aminopenicillin antibiotic (amoxicillin trihydrate) in aqueous solution using heat conduction microcalorimetry (2003) *J. Pharm. Pharmacol.* **55**, 1495. **(3)** Conformational structure of peptides containing dehydroalanine: Formation of beta bend ribbon structure (1999) *Int. J. Quant. Chem.* **72**, 15. **(4)** Hydrodynamic properties of short chain n-alkanes (1971) *Chem. Phys. Lett.* **10**, 487. **(5)** *The flight of the Phoenix* (2008) Panjab University Publication Bureau, Chandigarh.

Memberships: Member: Punjab State Planning Board; Technical Advisory Board for Chemical Science • Fellow: INSA 81; NASI 95; London Chemical Soc. • Founder President: Indian Thermodynamic Soc.

Awards & Distinctions: KSG Doss Award 92 • S R Palit Award 93 • J C Ghosh Award, Indian Chemical Soc. • R P Mitra Lecturer, Delhi Univ. • ISCA Platinum Jubillee Lecture • CRSI Silver Medal • Republic Day Award • For invention of motorless magnetic stirrer • Lifetime Achievment Award, Indian Chemical Soc. 2008.

Jain, Hari Krishan

Elected: 1975
Position: Chancellor, Central Agri. Univ. Imphal
Specialization: Genetics and Plant Breeding
Date and Place of Birth: 28 May 1930; Gurgaon, Haryana
Parents: Nemi Chand and Chameli Devi
Spouse and Children: Kusum Lata; two *d*
Address: 40, Suryaniketan, I P Extension, Delhi 110 092, India
Tel. (011) 2215 2560 (O), (011) 2237 9560 (R)
email: hkj@vsnl.net

Education: Delhi Univ.: BSc Hons 49; IARI, New Delhi: Associateship 51; Univ. College of Wales, Aberystwyth, UK: PhD 56.

Career: IARI, New Delhi, Dn of Genetics: Asst Cytologist 56-66, Cytologist, Head 66–76, Dir 77–83; International Service for Natl Agr. Res., The Hague: Dy Dir General 86–92.

Scientific Work: Identifying *Delphinium* as a test organism, made a number of interesting observations: a direct demonstration that breakage and reunion of chromatids constitute an essential part of the process of recombination between homologous chromosomes; subsequent studies provided evidence of the regulation of recombination at the interchromosome level. Modification of recombination in some of the chromosomes was found to have an effect on recombination in others. Also worked on genomic differentiation in bread wheat. One of the genomes was found to be far more active than others in RNA synthesis. Using a trisomic strain of hyacinth and tritium-labelled uridine, showed that the nucleolus organizing locus is very active in RNA synthesis. Discovered mutagen specificity, using marker genes in tomato and *Drosophila*. Worked on the theory of selection pressures determining crop yields and on policy issues in agricultural research.

Memberships: Fellow: INSA 74; NASI 88 • Member: UP State Planning Commission 78–80; Board of National Seeds Corporation 78–82; Intl Board for Plant Genetic Resources, Rome • President: Indian Soc. of Genetics & Plant Breeding 72.

Awards & Distinctions: S S Bhatnagar Prize 66 • Padma Shri 81 • Borlaug Award 82 • Om Prakash Bhasin Award 86 • ICAR Rafi Ahmed Kidwai Award.

Jain, Sanjay

Elected: 2007
Position: Prof., Univ. of Delhi
Specialization: Mathematical Modelling of Complex Systems; Structure; Dynamics and Evolution of Biological and Social Networks; Computational and Systems Biology
Date and Place of Birth: 31 January 1960; Delhi
Parents: Nemi Chandra Jain and Rekha
Spouse and Children: Nivedita Deo; one *d* (Saumya)
Address: Department of Physics and Astrophysics, University of Delhi, Delhi 110 009, India
Tel. (011) 2766 7725/1342 (O), (011) 2245 6389 (R), Mobile: 98731 20534
email: jain@physics.du.ac.in, jain_physics@yahoo.co.in; URL: http://people.du.ac.in/~jain/

Education: Univ. of Delhi: BSc 79, MSc 81; TIFR: PhD 87.

Career: TIFR, Mumbai: Res. Scholar 81–87; Brown Univ.: Res. Assoc. 87–90; Harvard Univ.: Res. Assoc. 90–92; IISc: Asst Prof. 92–2000, Assoc. Prof. 2000-04; Santa Fe Inst.: Vis. Prof. 99–2000; Univ. of Delhi: Prof. 2002.

Scientific Work: Structure and dynamics of complex networks, including chemical, biological, and socio-economic networks; Mathematical modelling of complex adaptive systems, evolutionary mechanisms; Models of non-equilibrium statistical mechanics; Nonlinear dynamics, random matrix models and quantum chaos; Quantum field theory, superstring theory and quantum gravity.

Important Publications: **(1)** The regulatory network of *E. coli* metabolism as a boolean dynamical system exhibits both homeostasis and flexibility of response (2008) *BMC Syst. Biology* **2**, 21. **(2)** A model for emergence of cooperation, interdependence, and structure in evolving networks (2001) *Proc. Nat. Acad. Sci.* (USA) **98**, 543–547. **(3)** Autocatalytic sets and the growth of complexity in an evolutionary model (1998) *Phys. Rev. Lett.* **81** 5684–5687. **(4)** World-sheet geometry and baby universes in 2-d quantum gravity (1992) *Phys. Lett.* **B286** 239. **(5)** Conformal invariance and string theory in compact space: Bosons (1985) *Phys. Rev.* **D32**, 2713.

Memberships: External Member: Santa Fe Institute, USA 2000–06, 2007–10 • Hon. Faculty Member: Condensed Matter Theory Unit, JNCASR 95 • Assoc. Member: Abdus Salam Intl Centre for Theoretical Physics, Trieste 96–2003.

Jairajpuri, Mohammad Shamim

Elected: 1993
Position: INSA Hon. Sci., Aligarh Muslim Univ.
Specialization: Plant Protection; Nematology; Biological Control; Parasitology; Biological Diversity
Date and Place of Birth: 8 April 1942; Jairajpur, Uttar Pradesh
Parents: M Moazzam Jairajpuri and Qudsia
Spouse and Children: Durdana S; three *d*
Address: Department of Zoology, Aligarh Muslim University, Aligarh 202 002, India
Tel. (0571) 270 0920–4/3435 (O), (0571) 270 3862 (R), Mobile: 94122 73202
email: jairajpurims@gmail.com

Education: Aligarh Muslim Univ.: BSc 59, MSc 61, PhD 64, DSc 70; Agri. Univ., Holland: PG Nematol.

Career: AMU, Dept of Zoology: Lecturer 64–72, Reader 72–81, Prof. 83-89, Chmn 88-89, Dean Faculty of Life Sci. 93-95; Commonwealth Agri. Bureaux-Intl, UK: Principal Nematologist 81–83; Zoological Survey of India: Dir 89–91; AMU, Inst. of Agri.: Dir 93–96.

Scientific Work: Studied plant and soil nematodes, which are serious limiting factors in agricultural productivity. Contributed to the systematics, structural, behavioural and developmental biology and the biological control of nematodes. Described a large number of nematode taxa including over 50 new genera and more than 250 new species.

Important Publications: **(1)** *Predatory nematodes* (1982) Associated Publication Co. New Delhi 131. **(2)** *Dorylamida: Free living predaceous and plant parasitic nematodes* (1992) E J Brill, Leiden, The Netherlands and Oxford & IBH Publ. Co., New Delhi, pp. 458. **(3)** *Nematode structure* (2002) Impressions Quality Printers, Hyderabad, 213. **(4)** *Nematode taxonomy* (2001) Impressions Quality Printers, 235 **(5)** *Nematode diversity* (2002) Silverline Printers, pp. 500.

Memberships: Fellow: NASI 90; INSA 92; NAAS 93; TWAS 99; London Inst. of Biology; Linnean Soc. of London; Zoological Soc. of India; FHS; FNSI; FIAS; FISP.

Awards & Distinctions: ZSI Gold Medal 78, 98, 2008 • Govt of India Ist Janaki Ammal Natl Award for Taxonomy 99 • INSA Har Swarup Award 2000 • INSA Jawaharlal Nehru Fellowship 2004 • D' Souza Award 2005 • Hon. Fellow NSI 2006 • ISP Life-time Achievement Award 2007.

Jameel, Shahid

Elected: 1997
Position: Group Leader, Virology, ICGEB, New Delhi
Specialization: Molecular Biology; Molecular Virology
Date and Place of Birth: 8 August 1957, Aligarh
Parents: Abdul Majid Siddiqi and Jamila
Spouse and Children: Rizwana; one *s* one *d*
Address: International Centre for Genetic Engineering and Biotechnology, NII Campus, Aruna Asaf Ali Marg, New Delhi 110 067, India
Tel. (011) 2674 2357 (O), (011) 2684 0631 (R)
email: shahid@icgeb.res.in; shahid.jameel@lycos.com

Education: AMU, Aligarh: BSc Hons 77; IIT Kanpur: MSc 79; Washington State Univ.: PhD 84.

Career: Univ. of Colorado, Medical School, USA: Postdoc Fellow 84–87, Asst Prof. 87–88; ICGEB, Sci and Group Leader 88–.

Scientific Work: Molecular biology and pathogenesis of hepatitis E virus; Role of HIV accessory proteins in pathogenesis.

Important Publications: **(1)** Hepatitis E virus transmission to a human volunteer (1993) *Lancet* **341**, 149–150. **(2)** Vertical transmission of hepatitis E virus (1995) *Lancet* **345**, 1025–1026. **(3)** The Nef protein of HIV-1 induces loss of cell surface costimulatory molecules CD80 and CD86 in APCs (2005) *J. Immunol.* **175**, 4566–4574. **(4)** The HIV-1 Vpu protein interacts with CD74 and modulates major histocompatibility complex II presentation (2008) *J. Virol.* **82**, 893–902. **(5)** The HEV ORF3 protein modulates EGFR trafficking, STAT3 translocation and the acute phase response (2008) *J. Virol.* **82**, 7100–7110.

Memberships: Fellow: NASI 96; INSA 2004 • Guha Res. Conf.; American Assn for Advancement of Sci.

Awards & Distinctions: Rockefeller Foundation Career Development Award • Young Muslim Scientist Award 94 • B M Birla Science Prize in Biology 95 • S S Bhatnagar Prize in Medicine 2000 • M R Das Memorial Lecture Award 2008.

Janaki Ammal, Edavaleth Kakkat*

Elected: 1935, 1953
Specialisation: Cytogenetics; Plant Geography
Date and Place of Birth: 4 November 1897; Tellicherry, Kerala
Parents: E K Krishnan and Devaki
Last Address: Edavaleth House, Kakkat, Tellicherry, India
***Deceased:** 7 February 1984

Education: Madras Univ.: BA Hons 21, MA Hons 24; Univ. of Michigan: MSc 26, DSc 31.

Career: Women's Christian College, Madras, Dept of Botany: Lecturer 21–24, Prof. 26–28; Univ. of Michigan: Barbour Res. Fellow in Botany 28–31; Maharaja's College of Sci.: Acting Prof. of Botany 32–34; Sugar Cane Res.

Station, Imperial Agri. Res. Inst., India: Geneticist 34–39; Univ. of Madras: Hon. Reader in Botany, 34–39; The John Innes Horticultural Inst., London: Asst Cytologist 39–45; Royal Horticultural Soc., London: Cytologist 46–51, Inst. Natl. Agronomique, Paris; Vis. Cyto-systematist 51–52; Central Botanical Lab., Botanical Survey of India, Allahabad: Dir 54; RRL, Assam: Offr on special duty and Emeritus Sci. 59–69; BARC, Bombay: Emeritus Sci.

Scientific Work: Well known for work on cytogenetical studies on sugarcane, egg plant, *Cymbopogon, Terminalia, Datura* and *Dioscorea*. Traced the evolution of these crops. Jammu Mint is one of the major contributions. In addition, did cytological studies of number of plants. Collected plants of medicinal and economic value and carried out valuable studies on the cytology of several plant taxa. Studied ethnobotany particularly the use of plants by tribals in Kerala.

Memberships: Fellow and Member: London Linnaean Soc.; Genetical Soc. of England; Genetical Soc. of America; Royal Horticultural Soc.; Botanical Soc. of India; INSA • President: Indian Soc. of Genetics and Plant Breeding.

Awards & Distinctions: Padma Shri 77.

Jayakrishnan, Athipettah

Elected: 2001
Position: Vice-Chancellor, Univ. of Kerala
Specialization: Polymer Chemistry; Biomaterials; Controlled Drug Delivery
Date and Place of Birth: 25 April 1953; Mangalam, Kerala
Parents: P Rajagopalan Nair and Janaki Kutty Amma
Spouse and Children: Sunitha; one *s*, two *d*
Address: University of Kerala, Kerala 695 034, India
Tel. (0471) 2306634 (O), (0471) 2353309 (R), Mobile: 94465 04747
email: dr_jayakrishnan@yahoo.co.in; URL: http://www.biotech.iitm.ac.in/faculty/jayak.htm

Education: Calicut Univ.: BSc 73, MSc 75; IIT Madras: PhD 80.

Career: Univ. of Florida, USA: Postdoc 81–84; Sci.; Sree Chitra Tirunal Inst. for Med. Sci. and Technol., Trivandrum: Sci. 85–2007; IIT Madras: Prof., Dept of Biotechnology, 2007–08; Univ. of Kerala: Vice Chancellor 2008–.

Scientific Work: Pioneered the development of polysaccharide and protein microspheres and polymer-drug conjugates for controlled drug delivery, and for embolization; co-invented ultraviolet light absorbing intraocular lenses which has been commercialized worldwide; conceived the idea of radiopaque polymers based on iodine containing monomers for the first time, and synthesized such polymers exhibiting excellent radiocontrast properties. Contributed significantly to the area surface modification of polymers for enhanced blood compatibility especially chemical modification of surfaces exhibiting anti-thrombogenic and antibacterial properties; seminal work on surface modification of polymers included a simple chemical process for the prevention of plasticizer migration from flexible PVC based medical devices. Also made significant contributions in the area of hydrogels for medical applications, especially self-crosslinking hydrogels for tissue engineering, drug delivery and wound dressing applications. Also noteworthy among the work on hydrogels is self-crosslinking hydrogels as potential tissue adhesives for surgery.

Important Publications: **(1)** Amphotericin B-gum arabic conjugates: synthesis, toxicity, bioavailability, and activities against *leishmania* and fungi (2007) *Pharm. Res.* **24**, 971. **(2)** Self-crosslinking biopolymers as injectable *in situ* forming biodegradable scaffolds (2005) *Biomaterials* **26**, 3941. **(3)** A floating-type oral dosage form for piroxicam based on hollow polycarbonate microspheres: *in vitro* and *in vivo* evaluation in rabbits (2002) *J. Control.* Rel. **79**, 71. **(4)** Polymer microspheres for endovascular embolization in (1999) *Microspheres* *microcapsules and liposomes* **2**, Medical and Biotechnology Applications, London, pp. 97–126. **(5)** Immobile plasticizer in flexible PVC (1998) *Nature* **396**, 638.

Awards & Distinctions: Technology and Environment Special Topic Award, Govt of Kerala, 96 • MRSI Medal 97 • Intl Soc. for Artificial Organs Regional Award for India, Middle East & Africa 97 • Distinguished Alumnus Award of IIT Madras for Academic Exellence 2005.

Jayannavar, Arun Mallojirao

Elected: 1996
Position: Prof., Inst. of Physics, Bhubaneshwar
Specialization: Condensed Matter Physics; Stochastic Processes and their Applications to Physical Problems; Classical and Quantum Transport Problems in Random Media; Physics of Mesoscopic Systems
Date and Place of Birth: 22 July 1956; Angol, Karnataka
Parents: Mallojirao Yallappa Jayannavar and Rukminibai
Spouse and Children: Mayadevi; one *s*, one *d*
Address: Institute of Physics, Sachivalaya Marg, Bhubaneshwar 751 005, India
Tel. (0674) 230 1058/119 (O), (0674) 2301588 (R)
email: jayan@iopb.res.in

Education: Karnataka Univ., Dharwar: BSc 76, MSc 78; IISc, Bangalore: PhD 87.

Career: IISc: Res. Scholar 78–82, Res. Assoc. 84–87; ICTP, Trieste, Italy: Vis. Sci. 83–84; Univ. of Ulm, Germany: Humboldt Fellow 88–90; Inst. of Phys., Bhubaneshwar: Sr Lecturer 91–92, Asst Prof. 93–98, Assoc. Prof. 98–2004, Prof. 2004–.

Scientific Work: Made contributions in several interdisciplinary areas of condensed matter physics, notably on the problem of normal-state c-axis resistivity in high-T_c layered cuprates; electronically disordered systems (Anderson localization); mesoscopic systems (persistent ring currents, decoherence); stochastic resonance and synchronization; thermal ratchets and molecular motors; heat pumps at nanoscale.

Important Publications: **(1)** Non-diffusive quantum transport in a dynamically disordered medium (1982) *Phys. Rev. Lett.* **48**, 553. **(2)** Temperature dependence of c-axis resistivity of high-T_c layered oxides (1992) *Phys. Rev.* **B45**, 5001. **(3)** Enslaving random fluctuations in nonequilibrium state (1996) *Int. J. Mod. Phys.* **B10**, 3857. **(4)** Persistent current in the presence of transport current (1995) *Phys. Rev.* **B51**, 10175. **(5)** Two simple models of classical heat pumps (2007) *Phys. Rev.* **E75**, 030103.

Memberships: Fellow: INSA 2002; NASI 2002.

Awards & Distinctions: G D Birla Award for Scientific Research 96 • ICTP Prize 98 • S S Bhatnagar Prize for Physical Sciences 2004.

Jayaram, Vikram

Elected: 2003
Position: Prof., IISc, Bangalore
Specialization: Ceramics; Thin Films; Electron Microscopy; Mechanical Properties
Date and Place of Birth: 3 October 1956; Madras, Tamil Nadu
Parents: K P Jayaram and Nirmala
Spouse and Children: Dheepa Srinivasan; two *d* (Spatika, Anahita)
Address: Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3243, (080) 2293 2263 (O), (080) 2334 5110 (R)
email: qjayaram@materials.iisc.ernet.in; URL: http://materials.iisc.ernet.in/~qjayaram/

Education: Cambridge Univ., UK: BA 78; Stanford Univ., USA: PhD 84.

Career: Lawrence Berkeley Lab: Staff Sci. 84–86; Univ. of California, USA: Asst Res. Engg 87–89; IISc: Asst Prof. 90–96, Assoc. Prof. 96–2002, Prof. 2002–.

Scientific Work: Major contributions to areas in materials as diverse as non-equilibrium materials, thin film mechanical properties and the processing of composites through reactive methods. Has shown how ideas in phase stability can be applied to the production of new ceramic materials by the decomposition of precursors. This work led to the synthesis, from solution precursors, of a new class of amorphous ceramics that display metal-like plasticity at low temperatures and which can be crystallized to make nanostructures. Group was instrumental in developing a basic understanding of the role of alloying elements in influencing the wetting and oxidation of aluminium alloys which led to the invention of a new method of making metal-matrix composites by reactive infiltration. Most recently, made new contributions to the mechanisms by which hard coatings break under contact deformation. In particular, has shown that the protection of soft substrates may be better accomplished by thin, rather than thick coatings, a finding which has implications for its design, both as monolithic as well as nanostructured multi-layers.

Important Publications: **(1)** A new technique for pressureless infiltration of aluminium alloys into alumina preforms (2001) *J. Mater. Res.* **16**, 10, 2906–2913. **(2)** Non-viscous, plastic flow in a glass of zirconium oxide aluminium oxide (2003) *Acta Materialia* **51**, 6, 1641–1649. **(3)** The nature of contact deformation of TIN films on steel (2004) *J. Mater. Res.* **19**, 9, 2616–2624. **(4)** Flow in porous ceramics: understanding with non-uniform capillary models *J. Am. Ceram. Soc.* 90 (10), 3040–3046. **(5)** *In-situ* synthesis and densification of ZrB2-ZrC composites by reactive hot pressing (2008) *Metall. Mater. Trans.* **A39**, 1496–1505.

Memberships: Fellow: NASI 2004; INSA 2009; INAE 2008; American Ceramic Soc.; Indian Inst. of Metals 2009; Materials Res. Soc. of India.

Awards & Distinctions: Rustom Chokshi Award for Excellence in Research in Engineering 2006 • National Metallurgists Day Award, Ministry of Steel & Mines 2000 • Presidential Scholar: Electron Microscopy Soc. of America 83.

Jayaraman, Achuthan

Elected: 2006
Position: Dir, NARL, Tirupati
Specialization: Atmospheric Science; Aerosols; Radiative Transfer
Date and Place of Birth: 21 June 1957; Nagercoil, Tamil Nadu
Parents: Achuthan Pillai and Saraswathi
Spouse and Children: Jamuna; one s (Siddharth)
Address: National Atmospheric Research Laboratory, P. B. No. 123, Tirupati 517 502, India
Tel. (08585) 272 001 (O), (0877) 2248099 (R), Mobile: 98481 31468
email: jayaraman@narl.gov.in

Education: Madurai Univ.: BSc 77; Madras Univ.: MSc 79; Gujarat Univ.: PhD 85.

Career: PRL: Sci. D 87–94, Reader 94-99, Assoc. Prof. 2000–04, Prof. 2004–07; Munich Univ., Germany: Guest Sci. 88–89; UCSD, USA: Vis. Res. Physicist 99–2000; NARL: Dir 2007–.

Scientific Work: Main research interest includes characterizing atmosphere aerosols and study of their radiative properties to understand their effect in altering Earth's radiation budget and climate. Contributed significantly in studying vertical profiles of aerosols using rocket experiments from Thumba and balloon experiments from Hyderabad. Developed high power backscatter lidar system for studying stratosphere volcanic aerosols. Developed a mobile lidar system and studied variation in the vertical distribution of aerosols over different regions in India as well as during fog events in Delhi. Made country's first aircraft lidar study over Hyderabad. Made ship cruise experiments to study dispersion of aerosols from the Indian Main land to over ocean surfaces.

Important Publications: **(1)** Developments and achievements in atmospheric sciences and space meterology in India (2007) *Curr. Sci.* **93**, 1779–1790. **(2)** Physical and optical properties of aerosols over an urban location in western India (2006) *J. Geophys. Res.* **111**, D24207. **(3)** Spatial variations in aerosol characteristics and regional radiative forcing over India (2006) *Atmos. Environ.* **40**, 6504–6515. **(4)** Aerosols and their radiative forcing over South Asia (2006) *Global Change News Lett.* **65**, 16–17. **(5)** Airborne lidar study of the vertical distribution of aerosols over Hyderabad (2006) *Ann. Geophys.* **24**, 2461–2470.

Memberships: Life Member: Indian Laser Assn; Indian Phys. Assn; India Meteorological Soc.

Awards & Distinctions: INSA Young Scientist Award 88 • PRL Award, Earth and Planetary Sciences 2001.

Jayaraman, Aiyasami

Elected: 1955
Specialization: High Pressure Physics
Date and Place of Birth: 5 December 1926; Madras, Tamil Nadu
Parents: Aiyasami Iyer and Mangalam
Spouse and Children: Kamala; two *d* (Geetha, Chitra)
Address: No. 15906, Lahinch Circle, Florida 33556, USA
Tel. (+1-813) 920 8061
email: aiyasami@hotmail.com

Education: Univ. of Madras: BSc 46, MSc 54, PhD 61.

Career: College of Engg, Madras: Res. Student and Demonstrator 48–49; RRI, Bangalore: Jr Res. Asst 49–52, Sr Res. Asst 52–54, Asst Prof. of Experimental Phys. 54–60 and Asst Dir 54–56; Inst. of Geophysics, UCLA, USA: Asst Geophysicist 60–63; AT&T Bell Lab., USA: Member of Tech. Staff 63–83, Distinguished Member of Tech. Staff 83–90; IISc and NAL, Bangalore: Vis. Prof. 90–92; Univ. of Hawaii, School of Earth Sci. & Technol., Hawaii: Sr Res. Sci. 92–97; Geophysical Lab. of Carnegie Inst. Washington DC: Res. Sci. 97–2000.

Scientific Work: Discovered the breakdown of covalency under high pressure in tetrahedral semiconductors which led to a new class of metals created by high pressure. Work on the P–T behaviour of elements and compounds has revealed novel pressure-induced structural phase transitions, pressure-induced electronic changes and unusual fusion behaviour. Discovery of the *4f* electron delocalization in rare earth chalcogenides under pressure started the mixed valent state and their unusual properties. Work on semiconductors elucidated the effect of pressure on the electronic band structure of III-V semiconductors and explained the Gunn effect in gaAs. Contributed to the understanding of the effect of pressure on spin density wave state in Cr-alloys and on the Mott transition in Cr doped V_2O_3.

Important Publications: **(1)** *C V Raman: A memoir* (1989) East West Press. **(2)** Melting and polymorphism of indium antimonide at high pressure (1961) Nature **V191,** *1288.* **(3)** Effect of pressure on the curie temperature of rare-earth metals (1964) *Phys. Rev.* **134**, A187. **(4)** Diamond anvil cell and high pressure physical investigations (1983) *Rev Mod. Phys.* **55**, 65–108. **(5)** The diamond anvil cell and modern high pressure research (1984) *Sci. Am.* **54.**

Memberships: Fellow: American Physical Soc. 69 • Chmn: Gordon Res. Conf. on High Pressure Res. 80

Awards & Distinctions: Krishnan Gold Medal for Geophysics 68 • Guggenheim Foundation Fellowship 70 • Alexander von Humboldt Foundation Sr Sci. Award 79 • AT&T Bell Lab. Distinguished Sci. Award 83 • Raman Centenary Award 88.

Jayaraman, Narayanaswamy*

Elected: 1955
Specialization: Mineralogical; Chemical Analysis
Date and Place of Birth: 12 February 1911; Maruvathoor, Tanjore, Tamilnadu
Parents: Narayanaswamy Iyer and Gowri
Spouse and Children: Kameswari; two *s*, five *d*
Last Address: Essen & Co., 550, 8th Main, Malleswaram, Bangalore 560 012, India
***Deceased:** 13 March 1971

Education: Univ. of Madras: BSc Hons 35, MA, DSc 40; IISc: AIISc 36.

Career: IISc: Res. Asst 40–43, Essen & Co., Analytical Chemists and Assayers, Bangalore: Dir 44–71; Indian Thermophosphates: Proprietor 67–71.

Scientific Work: Developed many commercial processes for manufacture of important chemicals such as barium chloride, titanium dioxide, etc. from mineral deposits. Developed and patented a process for manufacture of thermally fused phosphate fertilizer.

Awards & Distinctions: Sudborough Medal 41–42.

Jayaraman, Ramamirtha

7

Elected: 1989
Specialization: Molecular Biology; Molecular Genetics
Date and Place of Birth: 10 October 1937; Zinzaige, Burma
Parents: G Ramamirtham and Bragathkujambal
Spouse and Children: Kamakshi; two *s* (Arul, Sachindranath)
Address: R H 35, Palaami Enclave, Reserve Line, New Natham Road, Madurai 625 014, India
Tel. (0452) 264 2474 (R)
email: arjay007@rediffmail.com; ramjayaraman37@yahoo.com

Education: Univ. of Madras: BSc 57; Univ. of Bombay: MSc 62; Tufts Univ., USA: PhD 70.

Career: Associated Pharmaceutical Industries, Madras: Analytical Chemist 57–58; Atomic Energy Establishment, Bombay: Res. Student, Res. Asst 58–63; CIBA Res. Centre, Bombay: RA. 63–64; Maulana Azad Med. College, New Delhi: Demonstrator in Biochem. 64–65; Tufts Univ. School of Medicine, USA: Graduate Student 65–70; Harvard Univ., USA, Biological Laboratories: Damon Runyon Memorial Postdoc Fellow 70–72; TIFR, Bombay: Fellow 72–74; Madurai Kamaraj Univ., Madurai: Reader 74–84, Prof. of Molecular Biology 84–98; INSA: Sr Sci 98–2002, Hon. Sci 2002–

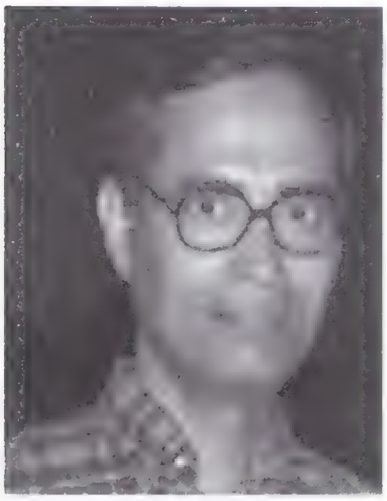
Scientific Work: Main contribution is the isolation and characterization (genetic, biochemical and molecular) of two mutations which affect the specificity of global transcription in *Escherichia coli*. Provided genetic evidence for two pathways of adaptive mutagenesis, under the control of mutS and mutL genes, in *E. coli*. Identified a recA-lexA independent repair of DNA cross links in certain genetic backgrounds. Obtained correlation between allele leakiness and adaptive mutability in *E. coli*. Showed that allele leakiness and adaptive mutability could be modulated phenotypically.

Important Publications: **(1)** A genetic assay for mRNAs of phage T4. (1969) *Proc. Natl. Acad. Sci. U.S.A.* **64**, 198–204. **(2)** Transcription of bacteriophage T4 genome *in vitro*: Heterogeneity of RNA polymerase in normal and T4-infected *Escherichia coli (1975) Biochemistry* **14**, 1265–1271. **(3)** Leakiness of genetic markers and susceptibility to post-plating mutagenesis in *Escherichia coli* (1995) *J. Genet.* **74**, 85–97. **(4)** Elucidation of the lesions present in the transcription defective mutant of Escherichia coli: Implication of phenylalanyl tRNA synthetase subunits as transcription factors (1999) *J. Biosci.* **24**, 153–162. **(5)** Modulation of allele leakiness and adaptive mutability of *Escherichia coli* (2000) *J. Genet.* **79**, 55–60.

Memberships: Fellow: INSA 93.

Awards & Distinctions: S S Bhatnagar Award 82 • Biological Sciences, UGC National Fellow 85–87 • S Radhakrishnan Award, Govt of Tamil Nadu 97 • INSA G N Ramachandran 60th Birthday Commemoration Medal 97.

Jemmis, Eluvathingal Devassy



Elected: 1992
Position: Dir. IISER, Thiruvananthapuram
Specialization: Theoretical and Computational Chemistry
Date and Place of Birth: 31 October 1951; Chevoor, Kerala
Parents: E P Devassy and P D Achayi
Spouse and Children: Alice; one *s*, one *d*
Address: Indian Institute of Science Education and Research Thiruvananthapuram, Transit Campus, CET-Thiruvananthapuram 695 016, Kerala, India
Tel. (0471) 2597421 (O), (0471) 2342407 (R), Mobile: 98950 24000
email: jemmis@iisertvm.ac.in; jemmis@gmail.com; URL: http://www.iisertvm.ac.in

Education: Univ. of Calicut: BSc 71; IIT Kanpur: MSc 73; Univ. of Princeton, USA: AM 74, PhD 78.

Career: Cornell Univ., USA: Res. Assoc. 78–80; Univ. of Hyderabad: Lecturer 80–84, Reader 84–90, Prof. 90–2005; IISc, Bangalore: Prof. 2005–08; IISER, Thiruvananthapuram: Prof. and Dir: 2008–; Australian Natl Univ., Canberra: Vis. Fellow 91.

Scientific Work: Mechanism of several carbon–carbon bond forming reactions mediated by transition metal organometallics have been elucidated by molecular orbital studies. The concept of aromaticity is extended to three dimensionally delocalized systems. Using a combination of electron counting rules and the optimization of fragment overlaps, structure and stability of polyhedral boranes and related molecules were predicted. This led to a 3 D equivalent of the Huckel rule and connecting polyhedral boranes to beta-rhombohedral boron and boron-rich solids. Analogies between organic and inorganic as well as amongst the main group compounds were made so that more chemistry can be discovered in a given area. Thus, for example a comparison of divalent Si and trivalent boron helped in discovering many new structures. In the area of theoretical organic chemistry, considerable success has been achieved in understanding substituent effects so that reactions can be designed to follow the desired course. Electronic structure of multicentre sandwiches is used to explain their geometric variations.

Important Publications: **(1)** Stuffing improves the stability of fullerene-like boron clusters (2008) *Phys. Rev. Lett.* **100**, 165504–165507. **(2)** Red- blue- or no-shift in hydrogen bonds: A unified explanation (2007) *J. Am. Chem. Soc.* **129**, 4620–4632. **(3)** Polyhedral boranes and elemental boron: Direct structural relations and diverse electronic requirements (2001) *J. Am. Chem. Soc.* **123**, 4324–4330. **(4)** A unifying electron-counting rule for macropolyhedral boranes, metallaboranes and metallocenes (2001) *J. Am. Chem. Soc.* **123**, 4313–4323. **(5)** Novel mechanism for interesting C-C coupling and cleavage reactions and control of thermodynamic stability Involving[L_2M(m-CCR)$_2$$ML_2$] and [$L_2$M(m-RCC-CCR)$ML_2$] complexes (M = Ti, Zr; L = H_5-C_5H_5, Cl, H; R = H, F, CN): A theoretical study (1998) *J. Am. Chem. Soc.* **120**, 6952–6964.

Membership: INSA 98; NASI 2004; TWAS 2004.

Awards & Distinctions: NCERT Talent Scholar 68 • INSA Young Scientist Award 82 • IASc Assoc. 84-87 • Anil Kumar Bose Memorial Award 88 • S S Bhatnagar Prize 94 • J C Bose Fellow 2006.

Jena, Prafulla Kumar

Elected: 1975
Position: Chmn, IATES; President NDRF, Bhubaneshwar
Specialization: Extractive Metallurgy; Mineral Processing; Environmental Engineering; Physical Chemistry of Materials Processing
Date and Place of Birth: 27 December 1931; Taliha, Orissa
Parents: B K Jena and Tilootama
Spouse and Children: Manjuporva; three *s*, one *d*
Address: Institute of Advance Technology & Environmental Studies (IATES) & Natural Resource Development Foundation (NRDF), Plot No. 80A–83A, Lewis Road, Bhubaneshwar 751 002, India
Tel. (0674) 243 0243, (0674) 243 6596 (O), (0674) 243 0363 (R)
email: iates_bbsr@yahoo.co.in; URL: www.iates.org.in

Education: Utkal Univ.: BSc 50, MSc 52, PhD 56; British Columbia, USA: MSc 59.

Career: BARC, Bombay, Metallurgy Dn: Res. Assoc. 59–68; BHU: Prof. of Metallurgy 68–72; Regional Res. Lab., Bhubaneshwar: Dir 72–89; Univ. of Rio de Janerio: Vis. Prof. 90; Indian Inst. of Technology, Kharagpur, Dept of Metallurgical Engg: Prof., Tata Chair 90; Tohoku Univ., Japan: Vis. Prof.

Scientific Work: Original contributions to the extractive metallurgy of refractory metals and developed new processes for separation of Nb and Ta by selective chlorination; calcio-thermic and aluminothermic reduction of the metal oxides; and electron beam refining of niobium and tantalum. Had worked on a new approach to chemical beneficiation of ilmenite and the production of sponge iron by gaseous reduction. Developed an economic flow sheet for extracting nickel and cobalt from the Orissa laterites.

Memberships: Member: Indian Inst. of Metals; Indian Inst. of Mineral Engineers • Fellow: Inst. of Engineers.

Awards & Distinctions: National Metallurgist Day Award 69 • Padma Shri 77 • FICCI Award 82.

Jha, Sudhanshu Shekhar

Elected: 1974
Position: Distinguished Guest Prof, IIT Bombay
Specialization: Solid State Theory; Quantum Computing; Photonics
Date and Place of Birth: 25 December 1940; Vijayanagar, Bihar
Parents: Asharfi Jha and Sundari
Spouse and Children: Sudha; two *d* (Nandita, Pallavi)
Address: 402 Vigyanshila, Juhu-Versova Link Road, Seven Bungalows, Andheri (W), Mumbai 400 061, India
Tel. (022) 2576 7588 (O), (022) 2632 7413 (R)
email: ss_jhain@hotmail.com

Education: Patna Univ.: BSc Hons 57; Stanford Univ., USA: MSc 62, PhD 65; Harvard Univ., USA: Postdoc Res. 69.

Career: AEE, Bombay: Trainee 57–58; TIFR, Bombay: Res. Asst 58–60, Res. Assoc. 60–65, Res. Fellow 65–67, Reader, Assoc. Prof., Sr Prof. 69–2002, Dir 97–2002, Distinguished Prof. 2002–03; Hon. Prof. 2003–07; Stanford Univ., USA: Res. Asst/Res. Assoc. 60–65; Harvard Univ., USA: Res. Fellow 67–68; IBM T J Watson Res. Centre, New York: Res. Fellow 68–69, Vis. Faculty 79–81; IIT Mumbai: Distinguished Guest Prof. 2007–.

Scientific Work: Pioneered theoretical predictions of optical second-order nonlinearity at metal surfaces and in centrosymmetric plasmas; calculation of optical nonlinear susceptibilities of important doped semiconductors; a technique for calculating energy distribution of thermal neutrons in a finite moderator assembly; a theory for the surface-enhanced Raman scattering from adsorbed molecules at metal surfaces; superconductivity due to exciton-exchange and electronic mechanisms in metal semiconductor sandwich structures and in highly correlated high-T_c layered metals; ultra-fast nonequilibrium opto-electronic devices and transient electrical response of photo-excited carriers in semiconductors; ground state of chargeless magnetic dipolar quantum Fermi liquid.

Important Publications: **(1)** Theory of optical harmonic generation at a metal surface (1965) *Phys. Rev. Lett.* **15**, 412. **(2)** Nonlinear optical susceptibilities in group IV and III-V semiconductors (1968) *Phys. Rev.* **171**, 891. **(3)** Electronic plus phonon-exchange mechanism for high temparature super conductivity in layered crystals (1987) *Pramana J. Phys* **L615**. **(4)** Picosecond Raman studies of the Frohlich interaction in semiconductor alloys (1987) *Phys. Rev. Lett.* **58**, 1869. **(5)** Stability of the high density ferromagnetic ground state of a chargeless magnetic dipolar, quantum Fermi liquid (2007) *Phy. Rev.* **E 76**, 062101, 1–4.

Memberships: Fellow: INSA 79; NASI 89; TWAS 99; American Physical Soc. 87.

Awards & Distinctions: S S Bhatnagar Award 79 • C V Raman Centenary Medal 88 • INSA Jawaharlal Nehru Birth Centenary Lecture Award 91 • INSA S N Bose Medal 92.

Jhala, Harshadray Ishverlal*

Elected: 1968
Specialization: Microbiology; Immunology; Bacteriology
Date and Place of Birth: 13 January 1919; Rajkot, Gujarat
Parents: Ishwarlal and Menalakshmi
Spouse and Children: Usha; one *s*, four *d*
Last Address: Charotan Arogya Mandal Hospital and Medical Research Centre, Karmsad 388 325, Gujarat, India
***Deceased:** 29 August 1984

Education: Univ. of Madras: MBBS 43; Univ. of Mumbai: MD 47.

Career: B J Med. College, Ahmedabad, Pathology Dept.: Tutor 41–48, Prof. 48; J J Group of Hospitals and Grant Med. College, Bombay: Clinical Pathologist 44, 46, Prof. 51–57; Haffkine Inst., Maharashtra: Dir 57–75; Sir Hurkisondas Nurrotumdas Hospital, Bombay: Med. Dir 73–.

Scientific Work: Worked in communicable disease extends over subjects of plague, cholera, virus diseases, toxoplasmosis, etc. First to use *Euglena* assay for study of Vitamin B_{12} in health and disease. Gave the first experimental proof of E1 Tor strain being a choleragenic vibrio. Work on passive protection of infant rabbits by anti-cholera resulted in development of bioassay of vaccines. Assessed the protective value of plague vaccines having different antigenic components. Extensive research related to a wide range of infectious diseases.

Memberships: Fellow: London Royal College of Pathologists; College of Physicians and Surgeons of Bombay.

Awards & Distinctions: Bombay Medical Union Gold Medal • Navrang and J B Chatterjee Gold Medals

Jhunjhunwala, Ashok

Elected: 2007
Position: Prof., IIT, Chennai
Specialization: Telecommunications; Computer Networks; Fibre Optics
Date and Place of Birth: 22 June 1953; Kolkata, West Bengal
Parents: Banwari Lal Jhunjhunwala, Shakuntala
Spouse and Children: Bhavani; one *s* (Siddharth)
Address: Department of Electrical Engineering, Indian Institute of Technology, Chennai 600 036, India
Tel. (044) 2257 0120, (044) 2257 4408 (O), (044) 2257 0202 (R), Mobile: 98400 16781
email: ashok@tenet.res.in

Education: IIT Kanpur: BTech 75; Univ. of Maine: MS 77, PhD 79.

Career: Washington State Univ.: Asst Prof. 79–81; IIT Madras: Asst Prof. 81–90, Head Electrical Engg 98–2001; Prof. 90–.

Scientific Work: Research areas are optical communication, computer network and wireless communication where he has significantly contributed in many dimensions. Over the last few decades is an in-depth look at cost and affordability of various components of the telecommunications and the internet network, especially in the context of developing countries. Led the telecommunications and computer networks group (TeNet) and also incubating technology companies under IIT Madras. This group works with industries for the development of technologies relevant to India. The overall aim is to facilitate newer technology assimilation to sustain the rapid telecom growth in India. An active member of the Scientific Advisory Committee of the Prime Minister.

Important Publications: **(1)** Techniques for efficient implementation of symbolic substitution using one of may coding (1996) *Optical Eng.* **35,** 2830–2837. **(2)** Can telecom and IT be for the disadvantaged? (1998) *J. Rural Dev.* **17,** No. 2, 321–33. **(3)** Evaluation of relative merits/demerits of different signalling, schemes used at a railway station for an approaching train in Indian railways today (2002) *IEEE Trans. Vehicular Technol.* **51**, 561–566. **(4)** India's mobile revolution (2005) *IEEE Vehicular Technol Soc., News Lett.* **(5)** Re-routing at critical nodes to enhance performance of wavelength reassignment in all-optical WDM networks without wavelength conversion (2008) *IEEE J. Lightwave Technol.* **26**, 3021–3029.

Memberships: Fellow: INAE 94; NASI 99; INSA 2000; World Wireless Res. Forum 2007; IEEE 2008; Member: SAC-PM 2003.

Awards & Distinctions: Padma Shri 2002 • S S Bhatnagar Prize 98 • Vikram Sarabhai Res. Award 97 • CSIR Millenium Medal 2000 • H K Firodia Award 2002 • FICCI Award 2003 • Hari Om Ashram Trust Award 2003 • IBM Innovation Leadership Forum Award 2003 • Shoch Challenger Award 2005 • Bleking Inst. Technol. DSc(h c) 2008 • ISCA Award for Excellence in Sci Tech. 2009 • Bernard Lown 42 Humanitarian Award 2009.

Jog, Chanda Jayant

Elected: 2007
Position: Prof., IISc, Bangalore
Specialization: Galactic Dynamics; Interacting & Star Burst Galaxies; Interstellar Molecular Clouds
Date and Place of Birth: 7 November 1954, Nagpur, Maharashtra
Parents: Jayant S Jog and Sanjeevan
Spouse and Children: Aloke K Jain; two *d*
Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3285, (080) 2360 7703 (O), (080) 2334 2340 (R)
email: cjjog@physics.iisc.ernet.in

Education: Bombay Univ.: BSc 74; IIT Bombay: MSc 76; State Univ. of Strong Brook, USA: PhD 82.

Career: Princeton Univ., USA: Postdoc Fellow 82–84; Univ. of Virginia, USA: Asst Prof. 84–86; IISc: Lecturer 87–90, Asst Prof. 90–96, Assoc. Prof. 96–2002, Prof. 2002–.

Scientific Work: Covered theoretical problems in galactic dynamics, interstellar molecule clouds, and dynamics and evolution of interacting galaxies. The emphasis has been to include both the stars and the interstellar gas in the dynamical studies of galaxies, so that the problems formulated are more realistic. Due to its low velocity dispersion and its dissipational nature, the inclusion of gas has a significant effect on the structure, stability, and the evolution of the entire galactic disk. The problems studied are either motivated by recent observations or the results make predictions which can be checked by future observations.

Important Publications: **(1)** Two-fluid gravitational instabilities in a galactic disk (1984) *Astrophys. J.* **276**, 114. **(2)** A triggering mechanism for enhanced star formation in colliding galaxies (1992) *Astrophys. J.* **387**, 152. **(3)** Origin of radially increasing stellar scale height in a galactic disk (2002) *Astron. Astrophys. Lett.* **390**, L35. **(4)** Galaxy mergers with various mass ratios: Properties of remnants (2005) *Astron. Astrophys.* **437**, 69. **(5)** Lopsided spiral galaxies (2009) *Phys. Rep.*, In press.

Memberships: AAS (American Astronomical Soc.); IAU (Intl Astronomical Union); ASI (Astronomical Soc. of India).

John, C C*

Elected: 1934
Last Address: Agra College, Agra, India
***Deceased**

Career: Agra College, Agra, Dept of Zoology: Prof.

John, Pucadyil Ittoop

Elected: 1995
Position: Meghnad Saha Chair, IPR, Gandhinagar
Specialization: Plasma Physics; Intense Particle Beams; Industrial Applications of Plasma
Date and Place of Birth: 18 March 1941; Kottayam, Kerala
Parents: John Ittoop and Sosamma
Spouse and Children: Minnu; two *s*
Address: Institute for Plasma Research, Bhat, Gandhinagar 382 428, India
Tel. (079) 2396 9030 (O), (02717) 23 5628 (R), Mobile: 98253 72431
email: john@ipr.res.in, john.pucadyil@gmail.com

Education: Kerala Univ.: BSc 60, MSc 62; Aligarh Univ.: PhD 69.

Career: Mar Athanassius College: Lecturer 62–64; Aligarh Univ.: Lecturer 69–72; PRL: Res. Assoc. 72–74, Fellow 74–78, Assoc. Prof. 78–82; Inst. for Plasma Res.: Prof. 82–88; Sr Prof. 88–2002, Meghnad Saha Chair 2002–.

Scientific Work: Equatorial electrojet was simulated in the laboratory to study the crossfield and Buneman instabilities characteristic of collisional magnetoplasmas. Properties of ion acoustic solitons under external modification of dispersive and nonlinear properties of the plasmas were elucidated. Discovered the multiple life time of single particle confined in non-adiabatic magnetic mirror traps. Initiated experiments using intense electron beams to modify external magnetic fields. Established conditions under which toroidal electron rings could be launched into equillibrium orbits. Was one of the proponents of the Aditya programme and took significant part in the indigenous design, fabrication and commissioning of the Aditya tokamak. Demonstrated a new, steady state technique for injection and formation of toroidal electron clouds in the laboratory and established, for the first time, low aspect ratio equillibria of electron plasmas. Initiated modelling of strong ion sheaths, new ideas of starting up the tokamak plasma using microwave pre-ionisation of a gas cloud and creating electric field layers at the edge of the tokamak plasma by selective acceleration of impurities using resonant *rf* heating. Major initiative in the industrial exploitation of the plasma technologies. Established a multidisciplinary programme, involving understanding and utilising physical, chemical and metallurgical processes in the plasma state. Strong linkages with the Indian industry have been established. A number of technologies like plasma nitriding, production of aluminium nitride, a high performance ceramic material, plasma assisted coating of silica on metals and dielectrics, silica coating for blood bag materials etc., zircon dissociation in a plasma furnace for recovery of zirconia, etc. have been developed.

Important Publications: *Plasma sciences and the creation of wealth* (2004) Tata McGraw-Hill, India.

Memberships: Life Member: Plasma Sci. Soc. of India • Member: Indian Physics Assn; Indian Nuclear Sci. Soc.; Material Res. Soc. of India • Fellow: Gujarat Sci. Acad.

Johri, Man Mohan

Elected: 1983
Specialization: Plant Biochemistry; Molecular Biology of Plants; Genetic Engineering
Date and Place of Birth: 15 September 1940; Agra, Uttar Pradesh
Parents: Brij Mohan Johri and Raj
Spouse and Children: Madhulika; two *d* (Sonali, Roopali)
Address: Flat No. 32, New Cosmos, Juhu-Versova Link Road, Andheri (W), Mumbai 400 053, India
Tel. (022) 2670 3270 (R), Mobile: 99305 64129
email: mmjohri@mailhost.tifr.res.in

Education: Delhi Univ.: BSc 59, MSc 61, PhD 65; MSU/AEC Plant Res. Lab, Michigan State Univ., USA: Postdoc Res. Assoc. 68.

Career: CSIR, New Delhi: Jr Res. Fellow 62–63; UGC: Res. Fellow 63–65; Michigan State Univ., USA: Res. Assoc. 65–68; TIFR, Bombay, Molecular Biology Unit: Vis. Fellow 68-70, Fellow 70–76, Reader 76–83, Assoc. Prof. 83–91, Prof. 91–2003; Univ. of Missouri, USA: Fulbright Sr Res. Scholar and Vis. Prof. 79–80; Washington Univ., USA, Biology Dept: Monsanto Fellow 80–81; Univ. of Heidelberg, Germany: Vis. Prof. 87.

Scientific Work: Discovered cell differentation by auxin and cyclic AMP in the moss *Funaria*. Differentiation is initiated in a group of 2–5 cells and is regulated by inoculum size, level of phytohormones, cyclic AMP and nutritional status. Extensively investigated the mechanism of auxin perception and signal transduction during caulonema differentiation.

Important Publications: **(1)** Enhancement of RNA synthesis in isolated pea nuclei by gibberellic acid (1968) *Proc. Natl Acad. Sci. Wash.* **59**, 269–276. **(2)** Auxin regulation of caulonema formation in moss protonema (1973) *Nat. New Biol.* **245**, 223–224. **(3)** Cell differentiation by 3′, 5′-cylic AMP in a lower plant (1976) *Nature* **259**, 480–482. **(4)** Clonal analysis of corn plant development. I. The development of the tassel and the ear shoot (1983) *Dev. Biol.* **97**, 154–172. **(5)** Hormonal regulation in green plant lineage families (2008) *Physiol. Mol. Biol. Plants.* **14**, 23–38.

Memberships: Fellow: INSA 93; Indian Botanical Soc.; Indian Soc. of Cell Biology; Indian Soc. for Genetics and Plant Breeding; American Soc. for Plant Biologists; Intl Soc. of Plant Morphologists; Intl Plant Growth Substances Assn; Assn for the Promotion of DNA Fingerprinting and other DNA Technologies.

Awards & Distinctions: USEF Fulbright–Hays Award 65 and 79 • SERC National Lecturership, DST 92 • INSA Bishambar Nath Chopra Memorial Lecture Award 95 • Birbal Sahni Gold Medal, Indian Botanical Soc. 2002.

Jones, Santhappan*

Elected: 1957
Specialization: Fisheries; Marine Biology; Entomology
Date and Place of Birth: 27 August 1910, Kovalam, Kerala
Parents: Santhappan and Phoebe
Spouse and Children: Edith; one *s*, two *d*
Last Address: Santinivas, Nanthencode, Trivandrum 695 003, India
***Deceased:** 26 February 1999

Education: Univ. of Madras: BA 33, MSc 37, DSc 52.

Career: Colombo Museum: Hon. Sci.; Madras Christian College: Tutor 37; Dept of Agri., Travancore State: Asst Entomologist 37; Central Res. Inst., Univ. of Travancore: Cardomom Res. Offr 40, Entomologist 41–47; Central Inland Fisheries Res. Inst., Ministry of Food & Agriculture, Govt of India, Calcutta & Barrackpore: Sr Res. Offr 47–54; Central Marine Fisheries Res. Station, Calicut: Sr Res. Offr and Offr Incharge: 54–57, Dir; Univ. College, Trivandrum: Emeritus Sci. 70; Home for Polio Handicapped Children, Trivandrum: Founder and Hon. Dir 74.

Scientific Work: An outstanding worker in the field of biology of fishes and made very valuable contributions to the life histories of Indian fishes. Work on Hilsa specially noteworthy. Has also published many papers in entomology and fisheries and was actively connected with programmes of research on the fisheries of the west coast of India.

Memberships: Member: FAO Panel of Fisheries Experts of the UN • President: Marine Biological Assn of India 71.

Awards & Distinctions: Presidential Award 87 • Handicapped Welfare Federation of India Award 88.

Joseph, George

Elected: 1988
Position: Prof., Dir, CSSTEAP, Dehra Dun
Specialization: Electro-optics: Space Instrumentation; Remote Sensing
Date and Place of Birth: 4 August 1938; Chenganoor, Alleppey, Kerala
Parents: M G Joseph amd Alice
Spouse and Children: Mercy; two *s* (Joseph, Mathews)
Address: CSSTEAP, IIRS Campus, 4, Kalidas Road, Dehra Dun 248 001, India
Tel. (0135) 274 0787, (0135) 274 0737 (O), (0135) 274 0761 (R), Mobile: 99972 25025
email: georgejoseph1938@hotmail.com

Education: Univ. of Madras: BSc 57; Univ. of Kerala: MSc 59; Univ. of Bombay: PhD 71.

Career: Union Christian College: Lecturer in Phys. 59–61; Atomic Energy Establishment School: Trainee-Phys. 61–62; TIFR: Res. Assoc. 62–70, Fellow 70–73; Space Applications Centre: Sci./Engineer SE 73–75, Sensor Development Dn.: Head 75–85; Indian Remote Sensing Satellite (Payloads): Assoc. Project Dir 80; INSAT-II Test Spacecraft (VHRR Payload): Assoc. Project Dir 84, Deputy Dir (Remote Sensing) 85–91,Assoc. Dir 91–94, Dir 94–98, ISRO Disting. Prof. 98–2007; CSSTEAP, Dehradun: Dir 2007–.

Scientific Work: Designed and realised a number of detectors for cosmic ray studies including a novel detector system flown on the satellite *Aryabhata* to detect solar neutrons. Set up useful upper limits on the solar neutron flux which is fundamental to the understanding of solar surface nuclear reactions. Instrumental in developing a variety of electro-optical sensors for earth observations which were first of its kind in India. Established an electro-optical laboratory, which is comparable to the best in the world with capability to design, manufacture and test a variety of complex optical systems and sensors of state-of-art. Include image processing techniques, and evolving methodology for utilization of remote sensing data for various applications in remote sensing. Generated study report for Chandrayaan-1, the first Indian mission to Moon.

Important Publications: **(1)** High-energy neutrons from the Sun (1967) *Nature* **213**, 21. **(2)** Extra-galactic origin of low energy gamma-rays (1972) *Nature* **235**, 319. **(3)** Imaging sensors for remote sensing. (1996) *Remote Sensing Reviews* **13**, pp 257–342. **(4)** How well do we understand Earth observation electro-optical parameters? *ISPRS Journal of Photogrammetry & Remote Sensing* (2000) Elsevier Science, **55**, pp 9–2. **(5)** *Fundamentals of remote sensing.* (2003) Universities Press.

Memberships: Fellow: NASI 85; INAE 96; Indian Geophysical Union; Gujarat Sci. Acad; India Meterological Soc.; Indian Soc. of Remote Sensing (ISR).

Awards & Distinctions: SICO, Natl Acad. Sci. Award 86 • Om Prakash Bhasin Foundation Award for Science & Technology 87 • ISRS Bhaskara Award - Instituted 97 • Padma Bhusan 99 • Geospatial Technol. Lifetime Achievement Award 2008 • ISRO Outstanding Achievement Award 2008 • Ministry of Earth Science National Award 2009.

Joseph, Kayyunnapara Thomas

Elected: 2005
Position: Prof., TIFR, Mumbai
Specialization: Hyperbolic Systems of Conservation Laws; Boundary Layers and Parabolic Partial Differential Equations; Burgers Equation and Mass Distribution of Large Scale Structures; Delta Shocks and Hamilton Jacobi equations
Date and Place of Birth: 4 March 1956; Edoor, Kerala
Parents: K M Thomas and Thresia
Spouse and Children: Sheeba; one *d* (Divya)
Address: School of Mathematics, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2208 (O), (022) 2280 4767 (R)
email: ktj@math.tifr.res.in

Education: Calicut Univ.: BSc 78, MSc 80; New York Univ.: MSc 86, PhD 87.

Career: TIFR: Fellow 90–93, Reader 93–98, Assoc. Prof. 98–2004, Prof. 2004–.

Scientific Work: Scientific contributions incude analysis of solutions of convex conservation laws and Hamilton Jacobi equations, analysis of boundary layers in approximate solutions of hyperbolic systems, large time behaviour of solutions of parabolic equations, study of compressible flow in the theory of explosions, study of a model equation describing the distribution of large scale structures in the universe and formation of delta shocks.

Important Publications: **(1)** Singular limits in phase dynamics with physical viscosity and capillarity (2007) *Proc. R. Soc. Edinburgh* Sec. A. **137**A, 1287–1312. **(2)** Boundary layers in weak solutions to hyperbolic conservation laws (1999) *Arch. Rat. Mech. Anal.* **147**, 47–88. **(3)** Exact N-wave solutions for non-planar Burgers equation (1994) *Proc. R. Soc.* London **445**A, 501–517. **(4)** Explicit formula for the solution of convex conservation laws with boundary conditions (1991) *Duke Math.* J. **62**, 401–416. **(5)** Burger's equation in the quarter plane, a formula for the weak limit (1988) *Comm. Pure. Appl. Math.* **41**, 133–149.

Joshi, Amar Chand*

Elected: 1936
Specialization: Botany
Date and Place of Birth: 18 September 1908; Bahadurpur, Punjab
Parents: Ram Kishan Joshi
Spouse and Children: Sumitra; one *s*
Last Address: Government Training College, Punjab, India
***Deceased:** 14 February 1971

Education: Goverment College, Lahore: BSc Hons 29, MSc 30; BHU, Varanasi: DSc 37.

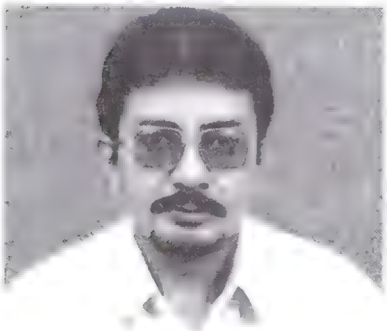
Career: Punjab Univ., Lahore: Demonstrator in Botany 30–31, Dir Botanical Lab. 45–47, Vice-Chancellor 57–65; BHU, Varanasi: Asst Prof. 31-44, Prof., Vice-Chancellor 67; Faizabad: Asst Collector 36; Govt College, Hoshiarpur:

Prof. of Botany 47–51; Govt Trg. College, Jullundur: Principal 51–53; Punjab Govt Dir of Public Instruction and Secretary 53–57; Punjab Univ., Chandigarh: Vice-Chancellor 57–65; Planning Commission, New Delhi: Adviser 65–67.

Scientific Work: Contributed to the fields of anatomy and embryology of the flowering plants, morphology of the flower, cytology and systematics. Work on the classical carpel and anomalous secondary growth is most notable.

Memberships: Fellow: INSA 38; Council of Commonwealth Univ. Assn • President: Indian Sc. Congress.

Joshi, Amitabh



Elected: 2001
Position: Prof.; Chmn, Evolutionary and Organismal Biology Unit, JNCASR, Bangalore
Specialization: Population and Quantitative Genetics; Evolutionary Genetics; Population Ecology
Date and Place of Birth: 4 March 1965; Agra, Uttar Pradesh
Parents: Devi Datt Joshi and Nirmala
Spouse and Children: Akella Vani; one *s* (Siddarth)
Address: Evolutionary and Organismal Biology Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2802, (080) 2208 2803 (O), (080) 2233 2567 (R), Mobile: 93413 54233
email: ajoshi@jncasr.ac.in; URL: http://www.jncasr.ac.in/eobu/ajoshi-homepage.html

Education: Delhi Univ.: BSc 86, MSc 88; Washington State Univ.: PhD 93.

Career: Univ. of California: Postdoc Res. 94–96; IISc: Visitor 96; JNCASR: Faculty Fellow 96–2001, Assoc. Prof. 2001–07, Prof. 2007–; Evolutionary and Organismal Biology Unit, JNCASR: Chmn. 2008–.

Scientific Work: Has conducted theoretical and experimental research in the broad areas: life-history and evolution; population and metapopulation dynamics; and the evolutionary genetics of circadian organization. This work has led to several novel insights into processes in evolution and ecology, especially in identifying new genetic correlations between fitness-related traits in fruitflies, the demonstration of the evolution of population stability as a by-product of life-history evolution, stabilizing effects of intermediate migration rates in metapopulations, scenarios for the coexistence of sexual and sexual morphs, the role of trade-offs in habitat-specific performance in the evolution of ecological specialization, and the possible role of biological clocks in mediating life-histories.

Important Publications: **(1)** Stability in model populations (2000) *Monographs in population biology* **31**, Princeton University Press, Princeton, NJ, USA. **(2)** Interspecific competition (2001) *Encyclopaedia of life sciences* (2001) Nature Publishing Group, MacMillan, London, UK. **(3)** The effect of different light regimes on adult lifespan in *Drosophila melanogaster* is partly mediated through reproductive output (2000) *J. Biol. Rhythms* **15**, 380–392. **(4)** Correlated responses to selection for faster development and early reproduction in *Drosophila*: The evolution of larval traits (2001) *Evolution* **55**, 1363–1372. **(5)** Stability via asynchrony in *Drosophila* metapopulations with low migration rates (2006) *Science* **312**, 434–436.

Memberships: Fellow: NASI 2002.

Awards & Distinctions: IASc Assoc. 97–2000 • Fellow, Wissenschaftskolleg 24 Berlin, 2001 • S S Bhatnagar Prize 2009

Joshi, Atmaram Bhairav

Elected: 1975
Specialization: Crop Breeding; Genetics
Date and Place of Birth: 17 November 1916; Jabalpur, Madhya Pradesh
Parents: Bhairav Balwant and Bhawanibai
Spouse and Children: Vimala; one *s*
Address: 10, Aboli Apartments, 102/103, Erandavana, Law College Road, Pune 411 204, India
Tel. (020) 2565 4793 (R)

Education: Univ. of Cambridge, UK: PhD 50.

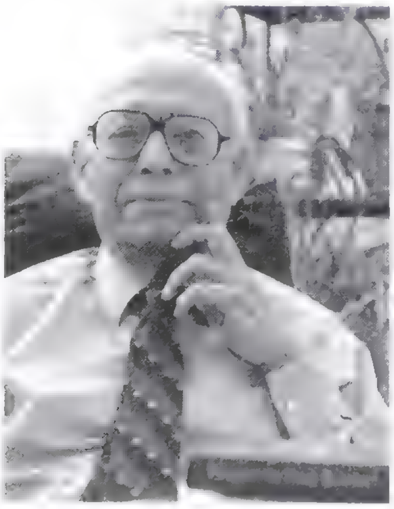
Career: Indian Agri. Res. Inst., New Delhi: Dean PG School 60–65; ICAR, New Delhi: Dy Dir General 66–72, Dir 72–77; Mahatma Phule Agri. Univ., Rahuri: Vice-Chancellor 77–80; Improvement of Field Crop Productivity, Cairo: Proj. Mgr 70–71; Maharashtra Assn for the Cultivation of Sci., Pune: Vice-President.

Scientific Work: Made significant contributions to cytogenetic research in sesame, chickpea (gram), tobacco, chilli and other crops; and evolutionary origin (and cytogenetics) of cultivated bhindi (Okra) and fodder grass (*Panicum maximum*). Carried out research on plant breeding methodology in relation to self-pollinated/cross-pollinated crops – cotton and wheat. Developed a new approach to quantitative genetic exploitation in crop improvement research.

Memberships: Fellow: Maharashtra Acad. of Sci.; INSA 62.

Awards & Distinctions: Borlaug Award 76 • Padma Shri 76.

Joshi, Balawant Shankar



Elected: 1975
Specialization: Chemistry of Natural Products; Ehtnobotany; Ayurvedic Medicines
Date and Place of Birth: 28 December 1924; Jamkhandi, Karnataka
Parents: Shankar Baldixit Joshi and Parvatibai
Spouse and Children: Prabha Garde; two *d* (Usha, Sandhya)
Address: 230, Ashbrook Drive, USA, Athens, Georgia 30605-3454, USA
Tel. (0), (+1-706) 549 2885 (R)
email: bsjoshi1228@bellsouth.net

Education: Univ. of Bombay: BSc Hons 45, BSc Tech 47, PhD 51; Univ. of Cambridge, England: PhD Cantab 55, ScD Cantab 84.

Career: Univ. of Bombay, Dept of Chemical Technol.: Demonstrator 50–52; Univ. of Chicago, USA: Res. Assoc. 55–57; NCL, Poona: Sr Sci. Offr 58–61; CIBA-Geigy Res. Centre, Bombay, Natural Products Dn: Sr Sci. 62–82; Univ. of Georgia, USA, Inst. for Natural Products Res.: Assoc. Res. Sci. 82–2001.

Scientific Work: Isolated a variety of secondary metabolites from plants and insects and applied modern physical methods in structure elucidation of these compounds. Carried out partial or total synthesis of some natural products to prove their structures. A systematic examination of many Indian medicinal plants, especially from the Western Ghats of India. Investigated plants used in Ayurvedic medicine for their biological activity and assisted in carrying out clinical trials on Ayurvedic drugs in the area of diabetes, hepatitis and parkinsonism. Work in the chemistry of natural products led to the discovery of several novel compounds belonging to the class of alkaloids, sesquiterpenoids, diterpenoids, triterpenoids, saponins, flavonoids, coumarins, lignans and quinones. Isolation and structure determination by use of 1HNMR, 13CNMR, MS, X-ray, was carried out on several alkaloids, sesquiterpenoids, diterpenoids, triterpenoids, saponins, flavonoids, coumarins, chromones, pterocarpans, phenolics, lignans and quinones.

Important Publications: **(1)** Sesquiterpenes of *Neolitsea zeylanica*, Merr, I, II, III (1967) *Tetrahedron* **23**, 261–271. **(2)** The crystal structure of 3-epicaryoptin and the revised structure of the currently accepted absolute configuration of clerodin (1979) *J. Chem. Soc. Chem. Comm.* 97–99. **(3)** Attenuol-structure, stereochemistry and synthesis (1979) *Tetrahedron* **35**, 1665–1671. **(4)** The synthesis of radermachol (1994) *J. Org. Chem.* **59**, 8220–8232. **(5)** *Chemistry of natural and synthetic colouring matters and related fields* (1962) Academic Press, New York and London.

Memberships: Fellow: INSA 76.

Awards & Distinctions: K Venkataraman Lecture Award, Univ. of Bombay 74 • R C Shah Lecture Award, Univ. of Bombay 75.

Joshi, Jyeshtharaj Bhalchandra

Elected: 1991
Position: R T Modi Prof. and Dir, ICT, Univ. of Mumbai
Specialization: Chemical Engineering; Fluid Mechanics; Reactor Design; Absorption of NO_x gases and Solar Energy
Date and Place of Birth: 28 May 1949; Masur, Maharashtra
Parents: Bhalchandra and Shardabai
Spouse and Children: Rujuta; one s
Address: Institute of Chemical Technology, University of Mumbai, Matunga,
Mumbai 400 019, India
Tel. (022) 2414 5616, (022) 2414 0865 (O), (022) 2411 5448 (R), Mobile: 98336 28905
email: jbj@udct.org; URL: http://www.udct.org/departments/ce/jbj/fp.html

Education: Bombay Univ.: B. Chem. Engg 71; M. Chem. Engg 72; PhD 77.

Career: Univ. of Bombay: Assoc. Lecturer 72–74, Lecturer 74–81, Reader 81–86, Prof. 86–2009; Inst. Chem. Technol.: Dir 2000–.

Scientific Work: Has done outstanding work in the field of multiphase reactors, fluid mechanics, equipment miniaturization frontiers of research in chemical engineering. Has succeeded admirably in designing and scale-up of multiphase reactors which form heart of the chemical process industry. A unique blend of theory, modelling, experiments and intuition has resulted in a rational basis for the design and scale-up of a large number of commercial size reactors. The *Chem Tech J.* (USA) through its editorial briefs has recommended the use of his procedures for the industrial design five times, which is truly a unique achievement. Has also developed novel and economical designs of eco-cooker, solar dryers and solar refrigeration systems for food preservation and air conditioning.

Important Publications: **(1)** Insight into theories of heat and mass transfer by direct numerical simulation and large eddy simulation (2007) *Ind. Engg Chem. Res.* **46**, 8525–8537. **(2)** Unified model for NO_x absorption in aqueous alkaline and dilute acidic solutions (2003) *AIChE J* **49**, 2728–2748. **(3)** Computational flow modelling and design of bubble column reactors (2001) *Chem. Engg Sci.* **56**, 5893–5933. **(4)** Flow generated by disc turbines-1 and 2 (1990) *Chem. Eng. Res. Des.* **68,** 19–33 and 34–50. **(5)** Axial mixing in multiphase contactors. *Trans. Inst. Chem. Eng.* (1980) **58**, 155–165.

Memberships: Fellow: Maharashtra Acad. of Sci.; INSA 95; TWAS 2008.

Awards & Distinctions: Medal for Young Scientists 81 • IAS Assoc. 83–86 • Amar-Dye-Chem Award 83 • Herdilla Award 89 • S S Bhatnagar Prize 91 • VASVIK Award 92 • Dr. K G Naik Gold Medal 95 • Chemtech Foundation Achiever of the Year Award 97 • INSA Vishwakarma Medal 2000 • Anji Reddy Innovation Award 2005 • Diamond of Indian Institute of Chemical Engineers 2007 • DST JC Bose Fellow 2008 • Lifetime Achievement Award, Indian Chemical Council 2008 • INSA Sayed Husain Zaheer Medal 2008.

Joshi, Niranjan Vasudeo

Elected: 1992
Position: Assoc. Prof., IISc, Bangalore
Specialization: Mathematical Modelling in Biology; Ecology and Evolution
Date and Place of Birth: 14 December 1951; Belgaum, Karnataka
Parents: Vasudeo Kashinath and Pradnya
Address: Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0985, 2293 2506 (O)
email: nvjoshi@ces.iisc.ernet.in

Education: Bombay Univ.: BSc 72; IIT Bombay: MSc 74; IISc, Bangalore: PhD 80.

Career: IISc, Bangalore, Centre for Theoretical Studies: Mathematical Programmer 78–83, Sci. Offr 83–87; Centre for Ecological Sci.: Lecturer 87–90, Asst Prof. 91–, Assoc Prof–.

Scientific Work: Analysed the flexibility of the pyranose sugar rings and also the structure-activity relationships of penicillin, cephalosporin and related beta-lactam antibiotics, using computational conformational analysis. Used a mathematical modelling approach to investigate.

Important Publications: **(1)** Impact of climate change on forests in India (2006) *Curr. Sci.* **90**, 354–361. **(2)** Conditions for the Trivers–Willard hypothesis to be valid: A minimal population-genetic model (2000) *J. Genet.* **79**, 9–15. **(3)** Exploring cultural-diversity of the people of India (1993) *Curr. Sci.* **64**, 10–17. **(4)** Evolution of cooperation by reciprocation within structured demes (1987) *J. Genet.* **66**, 69–84. **(5)** Flexibility of the pyranose ring in alpha-D-glucose and beta-D-glucose (1979) *Biopolymers* **18**, 2993–3004.

Joshi, Shri Krishna

Elected: 1974
Position: Hon. JNCASR Vikram Sarabhai Prof., NPL, New Delhi
Specialization: Solid State Physics; Atomic & Molecular Collisions
Date and Place of Birth: 6 June 1935; Anarpa, Uttarakhand
Parents: J R Joshi and Parwati
Spouse and Children: Hema; one s (Sanjay)
Address: National Physical Laboratory, K S Krishnan Road, New Delhi 110 012, India
Tel. (011) 45609363, (011) 45609358 (O), (0124) 238 3700 (R), Mobile: 98993 33258
email: skjoshi@mail.nplindia.ernet.in, skjoshinpl@gmail.com

Education: Allahabad Univ.: BSc 55, MSc 57, PhD 62.

Career: Allahabad Univ.: Lecturer in Phys. 57–65; Univ. of California, USA: Vis. Lecturer 65–67; International Centre for Theoretical Phys., Italy: Assoc. 71–75, Sr Assoc. 78–82; Roorkee Univ.: Prof. 67–86; Natl Physical Lab.: Dir 86–91; CSIR, New Delhi: Dir General 91–95; Dept of Scientific Industrial Res., New Delhi: Secretary 91–95.

Scientific Work: Provided a new and simple model for studying lattice vibrational frequencies in metals. Studies on electronic states in binary disordered alloys have provided a fresh insight into such systems. Has attempted to understand the high-temperature superconductivity by a novel approach. Currently working on high-temperature superconductivity and transport in mesoscopic systems.

Important Publications: **(1)** Transport through a coupled quantum dot system: Role of interdot interactions (2000) *Phys. Rev.* **B62**, 1580. **(2)** Temperature dependent photo luminescence in self assembled InAs quantum dot arrays (2003) *Phys. Stat. Sol.* (b) **239,** 2, 353–360. **(3)** BCS theory of superconductivity as modified by Coulomb interaction in cuprates (1992) *Phys. Rev.* **B45**, 361. **(4)** Effects of the nearest neighbour Coulomb interaction on the ground state of the periodic Anderson model (1998) *Phys. Rev.* **B57**, 5961. **(5)** Model for c-axis resistivity of cuprate superconductors (1998) *Phys. Rev.* **B57**, 6126.

Memberships: Fellow: INSA 74; NASI 84; TWAS 93; Russian Acad. Sci. 94.

Awards & Distinctions: Watumull Memorial Award 65 • S S Bhatnagar Prize 72 • CSIR Silver Jubilee Award 73 • UGC National Lectureship 73 • Meghnad Saha Award 74 • C V Raman Centenary Medal 88 • FICCI Award 90 • Goyal Prize 93 • Padma Shri 91 • Padma Bhushan: 2003 • Palmes Academiques 98 Govt of France, New Millennium Plaque of Honour in Physical Sciences, ISCA 2002.

Joshi, Shridhar Sarvottam*

Elected: 1934
Specialization: Inorganic & Physical Chemistry; Reactor under Electric Discharge
Date and Place of Birth: 16 October 1898; Pune, Maharashtra
Last Address: 1232, Shivaji Nagar, Pune 411 004, India
***Deceased:** 25 July 1984

Education: Univ. of Bombay: BSc 21; BHU: MSc 23; Univ. College, London: DSc 28.

Career: BHU, Dept of Chem.: Prof. 28–59.

Scientific Work: A brilliant and untiring experimentalist, made most of the glass apparatus needed for work on discharges, but trained all his students and assistants in the art of table *in situ* glass blowing. Research covered a broad spectrum including the zonal effect in the coagulation of colloids in the Smoluchowski slow region, photochemistry of gases under discharge, active nitrogen electrochemistry of fused salts and of organic redox systems. The observation of a decrease in current with time in a hydrogen–chlorine mixture under electrodeless discharge, where an increase was expected on account of the higher electron affinity of Cl_2 relative to HCl, was the beginning of what was to be recognised later as the Joshi effect.

Memberships: Fellow: INSA 45; Royal Inst. of Chemists • President: Chemistry Section, Indian Sci. Congress.

Awards & Distinctions: P C Roy Medal 57.

Joshipura, Anjan Sidhvantlal

Elected: 1996
Position: Sr Prof.; Outstanding Sci., PRL, Ahmedabad
Specialization: Theoretical High Energy Physics
Date and Place of Birth: 11 June 1950; Junagadh, Gujarat
Parents: Sidvantlal G Joshipura and Ramavati
Spouse and Children: Lucky; two *d*
Address: Theory Group, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4453 (O), (079) 2674 1687 (R)
email: anjan@prl.res.in

Education: Saurashtra Univ.: BSc 70; Gujarat Univ.: MSc 72; Univ. of Bombay: PhD 79.

Career: Univ. of Hamburg: Humboldt Fellow 80–82; IIT Kanpur: CSIR Pool Offr 82–84; Saurashtra Univ.: Lecturer 84–85; Inst. of Math. Sci., Madras: Asst Prof. 85–88; PRL: Assoc. Prof. 88–, Prof.– , Sr Prof.–.

Scientific Work: Made major contributions to the phenomenological developments of high energy physics, particularly in neutrino physics. Over the years several new ideas were generated to explain the then existing results on neutrino oscillations. These include systematic studies of schemes with degenerate neutrinos and sterile neutrinos. Specific role of discrete and grand unified symmetries in description of neutrino spectrum was brought out. Possibility of suppressing neutrino masses in supersymmetric theories with R parity violation was first discovered and the resulting implications were analyzed in detail subsequently. Possibility that the Higgs can escape detection through its invisible decay channel was pointed out and its connection to neutrino mass models was studied. Other areas of work include string compactification, CP violation and astro-particle physics.

Important Publications: **(1)** Majoron models and the Higgs search (1992) *Phys. Rev. Lett.* **69**, 3269–3273. **(2)** Almost degenerate neutrinos (1994) *Z. Phys.* **C64,** 31–35. **(3)** QuasiGoldstone fermion as a sterile neutrino (1996) *Phys. Rev.* **D54**, 4654–4661. **(4)** Sneutrino vacuum expectation values and neutrino anomalies through trilinear R-parity violation (1999) *Phys. Rev.* **D60**, 111303. **(5)** Non-vanishing U(e3) and cos 2 theta(23) from a broken Z(2) symmetry (2005) *Nucl. Phys.* **B713,** 151–172.

Memberships: Fellow: NASI 2004; INSA 2007 • Assoc. Member: ICTP, Trieste.

Junjappa, Hiriyakkanavar

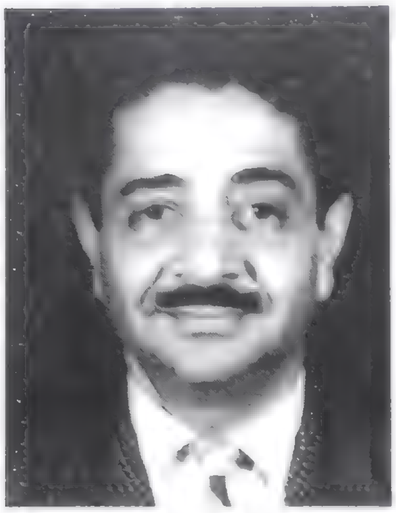
Elected: 1989
Specialization: Synthetic and Mechanistic Organic Chemistry
Date and Place of Birth: 23 May 1936; Aladgeri, Karnataka
Parents: Guddappa Hiriyamma
Spouse: Ila, one *d* (Deepali)
Address: Flat No. 002, Block 8, Heritage Estate, Doddaballapur Road, Yelahanka, Bangalore 560 064, India
Tel. (080) 266 4357 (R), Mobile: 98453 72078
email: junjappa_123@rediffmail.com

Education: Karnataka Univ., Dharwar: BSc Hons 58, MSc 60, PhD 64.

Career: IIT Kanpur: Postdoc 65-67; Ohio State Univ: Postdoc 67-69; Texas Tech Univ.: Postdoc 69-70; CDRI, Lucknow, Process Development Dn: Pool Offr 70–71, Medicinal Chem. Dn: Sci. B 71–76; NEHU, Shillong, Dept of Chemistry: Reader and Founder Head 76–78, Prof. and Head 78–90, Physical Sciences: Dean 80–84, Head 84–97; IIT Kanpur: CSIR Emeritus Prof 97–2003; Bio-organic & Applied Materials Pvt Ltd, Bangalore: Dir Of Res. 2003–07.

Scientific Work: Synthetic organic chemistry involving newer synthetic methods. Discovered several new general methods for the synthesis of five and six-membered heterocycles. A novel method for ene esters aldehydes and ketones and their polyene derivatives has been developed involving 1,3, 1,5,... 1-H-carbonyl transposition. An efficient method for synthesis of cyclopentanoids and their condensed analogs developed. Discovered a new method for construction of aromatics from open chain precursors. One pot benzoannelation to afford condensed aromatics by reacting lithiomethyl aromatics with phenylthioaeroline in high yields. The first method for anneliting benzene ring to any cyclic systems, is now known as the Junjappa-Ila(JI)-aromatic and hetero aromatic annulation.

Jussawalla, Darab Jehangir*



Elected: 1975
Specialization: Oncology; Surgery; Chemotherapy
Date and Place of Birth: 13 April 1915, Bombay, Maharashtra
Parents: Jehangir and Shirin
Spouse: Gertrud
Last address: Lady Ratan Tata Medical & Research Centre, Bombay, India
***Deceased:** 29 January 1999

Education: MS, FRCS, FACS, FAMS.

Career: Dept of Chemotherapy, Tata Memorial Hospital: 56, Dept of Cytology 53, Dn of Rehabilitation 58; Population-based Cancer Registry, Bombay: 63, Pune 72, Aurangabad 77, Nagpur 80; Tata Memorial Hospital and Cancer Res. Inst., Bombay: Dir and Sr Surgeon 73–80; Breach Candy Hospital, Bombay, Dept of Oncology: Head; Jaslok Hospital, Bombay: Hon. Consultant.

Scientific Work: Established first Cancer Rehabilitation Centre in Asia at Bombay and conducted research on various aspects of cancer rehabilitation and epidemiology of cancer. Conducted research in epidemiology of cancer at the first population-based Cancer Registry established in India at Bombay.

Memberships: Fellow: London Royal Soc. of Medicine; Acad. of Medical Sci.; American College of Surgeons; College of Chest Physicians, USA; Assn of Surgeons of Great Britain & Ireland; Natl Acad. of Medical Sci. • Member: Assn of Surgeons of India; Indian Medical Assn; Pan Pacific Assn of Surgeons; Scientific Advisory Committee, ICMR.

Awards & Distinctions: ICMR Raja Ravi Shersingh Khalsia Memorial Award 71 • Padma Bhushan 75 • 9th Dhanwantari Foundation Award 81.

Kadam, Baburao Sankararao*

Elected: 1945
Specialization: Genetics; Plant Breeding; Cytognetics; Agricultural Extension
Date and Place of Birth: 25 October 1903; Sholapur, Maharastra
Parents: Sankara Rao Vithal Rao Kadam and Parvatibai
Spouse and Children: Malini; two *s*, three *d*
Last Address: 12, Shivaji Housing Society, Poona 411 016, India
***Deceased:** 24 July 1985

Education: Iowa State Univ., USA: BSc 27; Cornell Univ., USA: MSc 28, PhD 40.

Career: Govt of Bombay: Crop Botanist 30–42, Dy Dir of Agri. 42–44, Asst Agri. Commissioner 44–46, Dir of Tobacco Res. 46–54, Dir of Agri. 54–56, Agri. Extension Commissioner 57–60, Jt Dir of Agri. 61–63; Agricultural College, Poona: Hon. Prof. 63–90.

Scientific Work: First to evolve a variety Niphad-4 from a tri-specific cross in wheat; evolved more than 25 varieties in rice, wheat, cotton, millet, maize, tobacco and grain legumes; developed a unique procedure of generating variability and promoting recombination by mixed pollen in synthetic populations in tobacco now being followed globally in several crops. Organized for first time in India cropping system research for maximizing returns in the cropping system rather than individual crops. Was father of the concept of large scale demonstrations on a package of improved practice vs farmer's method. First to organize pure seed production in India in both self and cross pollination crops.

Important Publications: **(1)** Symbolisation of gene in rice (1938) *Imp. Bu. Plant Breeding Gen.* 1–23; (1943) *Indian J. P Gene Plant Breeding* **3**, 7–27. **(2)** Random sampling for estimating rice yield in Colaba Bombay (1946) *Proc. Indian Acad. Sci.* **B28**, 194–209. **(3)** Genetics of Bansi wheat (1937) *Proc. Indian Acad. Sci.* **B5**, 169–181. **(4)** Flowering and pod setting in gram *Cicer arietinum* L. (1938) *J. Am. Soc. Agric.* **30**, 547–557. **(5)** Breeding new varieties of tobacco (1958) *Indian J. Genetic Plant Breeding* (1958) **17** 248–256.

Memberships: Fellow: INSA 46 • President: Indian Soc. of Genetics and Plant Breeding.

Kailas, Swaminathan

Elected: 1995
Position: Assoc. Dir, Phys. Group, BARC, Mumbai
Specialization: Nuclear Optical Model; Giant Resonances; Heavy-Ion Induced Fission/Fusion; Accelerator-based Applied Physics
Date and Place of Birth: 30 May 1949; Tiruchi, Tamil Nadu
Parents: R Swaminathan and Lakshmi
Spouse and Children: Subha; one *s*, one *d* (Arvind, Lavanya)
Address: Physics Group, Bhabha Atomic Research Centre, Mumbai 400 085, India
Tel. (022) 2559 3883, (022) 2559 3885 (O), (022) 2551 2291 (R)
email: kailas@barc.gov.in

Education: Madras Univ.: BSc 68, MSc 70; Bombay Univ.: PhD 77.

Career: BARC: Sci. Offr 71–; Indiana Univ., USA: Res. Assoc. 78–80; Univ. of Washington: Res. Assoc. 88–89.

Scientific Work: Carried out systematic measurement and analysis of total (*p*,*n*) reaction cross-sections for a range of medium weight targets and determined the proton-nucleus optical potentials at sub-coulomb energies. Completed systematic analysis of light-ion optical potentials to bring out their dependence on the projectile and the target masses and bombarding energies. Investigated in detail the collective excitations in nuclei – giant resonances – employing the technique of inelastic scattering of 90–100 MeV protons and helions and determined precisely the sum-rule strengths for various multipoles excited. Made significant contributions towards systematic investigations of heavy-ion fission fragment angular distribution for projectiles with mass numbers from 9 to 19 which have brought out the entrance channel dependence of fission fragment anisotropies, consistent with the pre-equilibrium fission model. Brought out interesting connections between nuclear fusion, elastic scattering and nuclear structure of interacting nuclei.

Memberships: DAE Fellow 68–70.

Kakodkar, Anil

Elected: 1998
Position: Chmn, AEC & Secretary, DAE, Mumbai
Specialization: Structural Mechanics; Nuclear Engineering
Date and Place of Birth: 11 November 1943; Barawani, Madhya Pradesh
Parents: Purushottam Kakodkar and Kamala
Spouse and Children: Suyasha; two *d*
Address: Atomic Energy Commission, Anushakti Bhavan, CSM Marg, Mumbai 400 001, India
Tel. (022) 2202 2543 (O), (022) 2363 3356 (R)
email: kakodkar@barc.gov.in, chmn@dae.gov.in

Education: Bombay Univ.: BE 63; Univ. of Nottingam, UK: MSc 69; BARC Training School: 64; AERC, Harwell: Course in Non-Destruction Testing 69; NITIE, Mumbai: Course in Project Management.

Career: BARC: Sci. Offr 64–73, Group Leader 73–84, Head, RED 84–89, Assoc. Dir 89–90, Dir Reader Design and Dev. Group 90–96; BARC Dir: 96–2000, Chmn, AEC & Secretary, DAE 2000–.

Scientific Work: Joined the Reactor Engineering Division of BARC and played a key role in design and construction of the Dhruva reactor, a completely original but high-tech project. Part of the core team of architects of India's peaceful nuclear tests in 1974 and 1998. Further, led the indigenous development in India's pressurised heavy water reactor technology. Work in the rehabilitation of the two reactors at Kalpakkam and the first unit at Rawatbhatta, which at one stage were on the verge of being written off, are examples of engineering capability. Engaged in designing the advanced heavy water reactor, that uses thorium-uranium 233 as the primary energy source with plutonium as the driver fuel, The unique reactor system, with simplified but safe technology, will generate 75 per cent of electricity from thorium.

Memberships: Fellow: INAE 99; NASI 2002; Maharashtra Acad. of Sci.

Awards & Distinctions: Hari Om Ashram Prerit Vikram Sarabhai Award 88 • H K Firodia Award for Excellence in Sc. and Tech. 66 • Rockwell Medal 97 • MRSI–ICSC Super Conductivity and Mat Sc. Annual Prize 97 • Padma Shri 98 • Padma Bhushan 99 • Padma Vibhushan 2009.

Kalam, Avul Pakir Jainulabdeen Abdul

Elected: 1984
Specialization: Composite Material Technology; Rocket Technology
Date and Place of Birth: 15 October 1931; Rameswaram, Tamil Nadu
Parents: Jainulabdeen Marakayar and Ashiamma
Address: 10, Rajaji Marg, New Delhi 110 011, India
Tel. (011) 2569 4280 (R)
email: apjabdulkalam@yahoo.com

Education: St Joseph's College, Tiruchirapalli: BSc; Madras Inst. of Technol.: DMIT.

Career: Ministry of Defence, Directorate of Tech. Development & Production (Air) & ADE, Bangalore: Sr Sci. Offr 58–63; Thumba Equatorial Rocket Launching Station, Trivandrum: Rocket Engineer, Rocket Engg Dn: Head; Space Sc. Technol. Centre, Trivandrum, Fibre Reinforced Plastics Dn: Head; Pyrotechnic Lab.: Head; Menaka-I & II Meteorological Rockets: Project Leader; Rocket Assisted Take off System: Chief Designer; Vikram Sarabhai Space Centre, Trivandrum, SLV3: Project Dir; Aerospace Dynamics & Design Group: Dir; ISRO, Bangalore, Launch Vehicles/Systems: Dir 64–80; Scientific Adviser to Defence Minister and Secretary, Dept of Defence Res. & Development 92–99; Principal Scientific Adviser, Govt of India 99–2001; Anna Univ., Chennai, Technology & Societal Transformation: Prof. 2001–; 11th President of India 2002–2007.

Scientific Work: Established Rocket Engineering Division in Thumba Equatorial Rocket Launching Station. Worked as test director for several single and multi-stage rockets. Built 'Composite Material Technology'. Designed and developed filament winding machines and fibreglass moulded parabolic antenna of various sizes. Visualized and projected the meteorological rocket recruitment. Carried out design, development, qualification and flight testing of 44 major subsystems and integrated controlled and guided launch vehicle. Responsible for completion of SLV-3 Project in 7 years time. Pioneered indigenous launch vehicle design capability and evolved project management expertise and trained manpower for future high technology and large space projects.

Important Publications: **(1)** *Wings of fire* (1999) Orient Longman. **(2)** *Ignited minds. Unleashing the power within India* (2003) Penguin Books.

Memberships: Fellow: INAE 87; NASI 89 • Hon. FIETE.

Awards & Distinctions: National Design Award, Institution of Engineers 80 • Padma Bhushan 81 • Padma Vibhushan 90 • Biren Roy Space Award of Aeronautical Soc. of India 86 • Bharat Ratna 97.

Kalamkar, Ramchandra Jaykrishna*

Elected: 1936
Specialization: Agricultural Science
Date and Place of Birth: 28 August 1903; Malkapur, Maharashtra
Parents: Jaykrishna Kalamkar and Radhabai
Spouse and Children: Padmawati; three *d*
Last Address: 176, Dharampeth Extension, Nagpur 440 001, India
***Deceased:** 24 May 1974

Education: Nagpur Univ.: BSc 26, BSc 29; London Univ.: PhD 32.

Career: India Meteorological Dept, Agr. Meteor. Stn, Pune: Professional Asst 32–35, Asst Agricultural Meteorologist 35–37; Provincial Agricultural Service, Central Provinces and Berar: Asst Dir 37, Dy Dir of Agri. 37–42, Offr on Special Duty 43–47; Ministry of Agriculture, New Delhi: Agronomist 47–48, Offr on Special Duty 48, Dir of Operation (Central Tractor Organization) 49–50; Madhya Pradesh Agricultural Service: Dir 50–56; Govt of Iraq, Baghdad: FAO Agricultural Adviser 59–64.

Scientific Work: Elucidated the dependence of crop on its environmental factors. Showed that the reciprocal of the yield is the sum of portions, each a function of one nutrient, the function of a particular nutrient being inversely proportional to that nutrient in an available form. Evaluated the influence of rainfall on the yield of some crops and also its interaction with the different manures added to it. Completed a study of the cotton crop in relation to weather and economic factors like prices and made numerous contributions to the new subject of agricultural meteorology, such as the development of the field plot technique in increasing the precision of field experiments and the designing of sampling methods for the studies on the growth of crops and the estimation of their yield.

Memberships: Member: Indian Council of Agricultural Research.

Kalbag, Shrinath Sheshagiri*

Elected: 1974
Specialization: Chemical Engineering; Food Engineering Science; Education
Date and Place of Birth: 23 October 1928; Bombay, Maharashtra
Parents: Sheshgiri and Ambabai
Spouse and Children: Mira; one *s*
Last Address: Vigyan Ashram, Centre for Science Education and Research, Pabal 412 403, Dist Pune, India
***Deceased:** 30 July 2003

Education: Univ. of Bombay: BSc Hons 48, BSc 50, MSc 52; Univ. of Illinois, USA: PhD 55.

Career: CFTRI, Mysore: Sr Sci. Asst 56, Jr Sci. Offr 56–58, Sr Sci. Offr 58–63; Hindustan Lever Ltd, Res. Centre: Res. Sci. 63–65, Section Leader, Process Dev. Sec. 66, Dn Mgr 67–82; Vigyan Ashram: Hon. Dir 83.

Scientific Work: Contributions include an integral process to separate, carbohydrate, protein and fat from groundnuts and cake; many fine chemical processes scaled up from laboratory to commercial production including engineering aspects of non-edible oils; synthetic fatty acids on pilot plant scale from *n*-paraffins from Bombay High crude. Industrial scale chromatography to separate trace components from sal and other fats; new technical education system that integrates education & development.

Memberships: Fellow: Institute of Engineers • Member: Joint Council of Vocational Education & its Standing Committee • Chmn: Natl Expert Committee for Review of Community Polytechnics.

Awards & Distinctions: INSA B D Tilak Lecture Award • G D Parikh Award.

Kalyanaraman, Subramanian

Elected: 1969
Specialization: Neurosurgery
Date and Place of Birth: 1 January 1934; Tiruchirapalli, Tamil Nadu
Parents: V Subramanian and Sarada
Spouse and Children: Pattammal; one *s*, one *d*
Address: 2, Central Street, Kilpauk Garden Colony, Chennai 600 010, India
Tel. (044) 2644 0442 (O), (044) 2644 2667, (044) 2644 3112 (R), Mobile: 98840 70469

Education: Univ. of Madras: MBBS 56, MS (Gen. Surgery) 59, MS (Neurosurgery) 65; Univ. of Edinburgh: PhD 64.

Career: Stanley Medical College & Hospital, Madras: House Surgeon 56–59, Asst Prof. of Surgery 59–60; Univ. of Edinburgh: Hon. Clinical Asst 60–64; Madras Medical College and Govt General Hospital, Madras: Asst Prof.

of Neurosurgery 64–67, Additional Reader in Neurosurgery 67–68; Govt of Tamil Nadu, Dept of Neurology: Asst Prof., Prof., Addl Prof., Head, Consul. Surgeon 86–.

Scientific Work: Established the position occupied by the pyramidal tract in the internal capsule and has successfully used stereotaxic surgery in the treatment of Parkinsonism. Successfully produced bilateral stereotaxic lesions and demonstrated that these minor lesions are not harmful. Made several contributions on the management of graving fractures of the skull stereotaxic surgery for pain and mental diseases and medical treatment of cerebral tuberculosis.

Memberships: Member: Neurological Soc. of India; Natl Acad. of Medical Sci. 71; Royal College of Surgeons of England 61; FRCS (Edinburgh); FACS 67; FICA 74.

Awards & Distinctions: S S Bhatnagar Award 69.

Kalyanasundaram, Ramachandran*

Elected: 1969
Specialization: Botany; Plant Pathology
Date and Place of Birth: 20 February 1930; Vedaranyam, Tanjore Dist., Tamil Nadu
Parents: A Ramachandran and N Abhirami
Spouse: P V Indira
Last Address: Centre of Advanced Study in Botany, University of Madras, Madras, India
***Deceased:** 11 April 1980

Education: Madras Univ.: BSc Hons 50, PhD 54; EITH, Switzerland: Dr. Nat. Sci. 60.

Career: Univ. Botany Lab., Madras: Sr Lecturer 60–64; Univ. of Madras, Centre for Advanced Study in Botany: Reader 64–76, Prof. 76–80.

Scientific Work: Studies in the maiden field of fungal serology, in determining group-specificity and correlating loss in virulence with immunoserological patterns, had opened up new vistas in the field of serodiagnostic methods in fungal classification and in determining factors leading to a loss in pathogenicity. In studies on fusaric acid and its role in cotton wilt, developed new concepts on host-specific production of toxin as a determinant of host-specificity and on the contrasting nature of toxins between biotrophs and perthophytes. Extended studies into medical mycology and developed methods for preparing antigens for serological diagnosis of human aspergillosis.

Memberships: Member: Swiss Botanical Soc.; British Mycological Soc. • Fellow: Indian Botanical Soc.

Kamal, Aditya Kumar

Elected: 1974
Specialization: Air Traffic Control; Surveillance; Automation; IFF; Mode S; GPS
Date and Place of Birth: 5 July 1927; Kairana, Muzaffarnagar, Uttra Pradesh
Parents: Shobha Ram and Saroj
Spouse and Children: Saroj; two *s*, one *d* (Pankaj, Arvind, Amita)
Address: 18, Crystal Circle, Burlington, MA 01803, USA
Tel. (+1-781) 890 3330/235 (O), (+1-781) 272 6315 (R)
email: akk@arcon.com

Education: BHU: BSc 46; Allahabad Univ.: MSc 48; IISc, Bangalore: DIISc 51; Univ. of Paris, France: Dr. Ing. 57.

Career: Delhi Polytechnic: Lecturer 51–52; Marconi's Wireless Telegraph Co., UK: Engr. 52–54; CSF, Paris: Sr Engr. 54–57; Ligne Telegraph Telephon., Paris: Sr Proj. Engr. 58–59; Purdue Univ., USA: Assoc. Prof. and Dir 59–64; Univ. of Roorkee: Prof. and Head 64–65, 66–80; Univ. of South California: Vis. Prof. 65–66; Boston Univ. 80–82; The Mitre Corp., USA: Staff. 82–94; Arcon Corpn, Mass, USA: Consultant 94–97.

Scientific Work: Established the Mille Meter Wave Res. Lab. and Quantum Electronics Res. Lab in Purdue Univ., USA. Investigated the absorption and transmission spectra for GaAs lasers at different temperatures. Developed VHF communication system, light weight radar microwave diode, non-reciprocal circuit element (gyrator), tunnel diode amplifier at microwave frequencies, etc.

Important Publications: **(1)** *Laser Abstracts* (1964) Plenum Press, New York. **(2)** *Transistor and Vaccuum Tube Electronics* (1972) New Chand and Brothers, Roorkee. **(3)** *Solid State Microwave Devices and Applications* (1972) Khanna Publishers. **(4)** *Radar and Microwave Communications* (1972) Univ. of Roorkee.

Memberships: Member: IETE (India); Sigma Xi; London IEE • Fellow: Inst of Engineers.

Kamesam, S*

Elected: 1934, 1938
***Deceased:** 1953

Education: BE, MIE, DSc.

Career: Govt of Travencore: Director of Development.

Kamra, Adarsh Kumar

Elected: 1998
Position: Emeritus Sci., IITM, Pune
Specialization: Atmospheric Electricity; Cloud Physics; Aerosol Physics
Date and Place of Birth: 20 September 1944; Kamalia, Punjab
Parents: Nand Lal Kamra and Kaushalya Devi
Spouse and Children: Uma; one *s*, one *d* (Sanjeev, Pooja)
Address: Indian Institute of Tropical Meteorology, Homi Bhabha Road, Pashan, Pune 411 008, India
Tel. (020) 2589 3600, (020) 2589 3675-81 (O), (020) 25887270 (R), Mobile: 97645 36103
email: kamra@tropmet.res.in

Education: Agra Univ.: BSc 61, MSc 63; Roorkee Univ.: PhD 68.

Career: State Univ. of New York: Res. Assoc. 68–71; Univ. of Roorkee: Pool Offr 71–74; Phys. Dept, Univ. Pune: Adjunct Prof. 99–2006 IITM: Sr Sci Offr 74–2006, Asst Dir 80–88, Dy Dir 88–2002, Sci 2002–06, Emeritus Sci. 2006–.

Scientific Work: Investigated, the nature, causes and evolution of thunderclouds electrification and its effects on various charging mechanisms, microphysical and dynamical properties of thunderclouds; the characteristics of lightning in thunderclouds; the electrical characteristics of dust storms; the physical properties of the marine and Antarctic aerosols from the sea-borne and air-borne measurements of atmospheric aerosols over the Indian Ocean, Arabian Sea, the Bay of Bengal, and at Antarctica; ion-aerosol interactions over the Earth's surface; new particle formation mechanisms in the atmosphere; the global electric circuit from atmospheric electricity and aerosol measurements over oceans and at Antarctica; the phenomenon of aerosol scavenging in the subcloud layer; the effect of solar eclipse on atmospheric electric parameters. Developed several instruments for measurements of the atmospheric electric parameters and for laboratory simulation experiments to study various phenomenons in cloud microphysics.

Important Publications: **(1)** The role of electrical forces in charge separation by falling precipitation in thunderclouds (1975) *J. Atmos. Sci.* **32**, 143. **(2)** The onset of disintegration and corona in water drops falling at terminal velocity in horizontal electric field (1993) *J. Geophys. Res.* **98**, 12901–12912. **(3)** Effect of relative humidity on the electrical conductivity of marine air (1997) *Quart J. Roy. Met. Soc.* **123**, 1295–1305. **(4)** Evolution of lightning in an isolated hailstorm of moderate size in the tropics, (2007) *J. Geophys. Res.* **112**, D20205. **(5)** On the aerosol number concentration wind speed relationship during a severe cyclonic storm over south Indian Ocean, (2008) *J. Geophys. Res.* **113**, 1–10, D0220.

Memberships: Life Member and Fellow: Indian Meteorological Soc; INSA 2004 • Member: Commission for Atmos. Sci., WHO 96–2000; Natl Council, Indian Meteorol. Soc. 2001–03.

Awards & Distinctions: WHO Research Award for encouragement of young scientists 76 • IIT-M Silver Jubliee Award 89, 92, 2004, 2007.

Kane, Govind Pandurang*

Elected: 1943
Specialization: Ignition of Hydrocarbons; Gases
Date and Place of Birth: 2 March 1911, Satara, Maharashtra
Parents: P V Kane and Gangabai
Spouse and Children: Shanta (deceased), Romila Ranade; three s; one d
Last Address: Flat 28, [illegible], Bombay 400 [illegible], India
***Deceased:** 23 June [illegible]

Education: Bombay Univ: BSc 31, MSc 34; London Univ: PhD 36, DIC 36

Career: IISc, Bangalore: Res. Fellow 31–34; Imperial College, London: Res. Fellow 34–35; Univ of Bombay, Dept of Chem. Engineering: Reader and Prof. 39–54, Dir 46; Univ. of Pittsburgh, USA: Vis. Prof. 70; Industries Ministry, New Delhi: Industrial Adviser, Sr Industrial Adviser, Dy Dir General 54–69

Scientific Work: Worked on the spontaneous ignition under pressure of the simpler olefins in admixture with air. Played a prominent part in reorienting chemical engineering training throughout the country. Researches on topics that had a bearing on industry. Established a lasting link between the chemical industry and the university in many ways.

Memberships: Fellow: London Inst. of Chemical Engineers; London Inst. of Fuels • President, Indian Inst. of Chemical Engineering

Awards & Distinctions: Padma Shri 68

Kanga, Darab Dinsha*

Elected: 1934
Specialization: Dietetics; Indigenous Drugs
Date of Birth: 25 November 1879
Spouse: Avaa
Last Address: [illegible], 171, Tardeo Road, Mumbai 400 007
***Deceased:** January 1955

Education: Univ. of Bombay: MA 1903; IISc, Bangalore; College of Technology, Manchester

Career: Prof. T K Gajjar's Techno-Chemical Lab., Bombay, Analytical Dept: Prof. of Chem. and Superintendent 1904–09; Elphinstone College: Lecturer in Chem. 1909–21; Gujarat College, Ahmedabad, Chem. Dept: Prof. and Head 22–34

Scientific Work: Contributions relate to conessine from the seeds of *Holarrhena antidysenterica*; chemical examination of the fruits of *Solanum xanthocarpum*; embelic acid from *Embelia ribes*; oil from the leaves of *Lantana camara* and flowers of *Lavendula burmanni*; alkaloids from the bark of the root of *Alangium lamarckii*

Memberships: Fellow, Bombay Univ. • Chmn, Board of Studies in Chem.

Kanhere, Dilip Govind

Elected: 1999
Position: Prof., Univ. of Pune
Specialization: Condensed Matter Theory; Computational Physics, Strongly Correlated Systems; Density Functional Theory
Date and Place of Birth: 6 January 1950; Pune, Maharashtra
Parents: Govind V Kanhere and Suman
Spouse and Children: Zelam D; one *s*, one *d*
Address: Department of Physics, University of Pune, Pune 411 007, India
Tel. (020) 2569 1955 (O), (020) 2569 8589 (R), Mobile: 94210 06705
email: kanhere@unipune.ernet.in, kanhere@physics.unipune.ernet.in; URL: http://www.unipune.ernet.in/~kanhere

Education: Pune Univ.: BSc 69, MSc 71; IIT Kanpur: PhD 76.

Career: Pune Univ.: Lecturer 78–86; Reader 86–93; Prof. 93–.

Scientific Work: In the area of computational condensed matter; physics and chemistry of clusters; finite temperature properties; melting and size sensitive features. A combination of density functional theory and molecular dynamics turned out to be a powerful tool for realistic atomic simulations. Using simulated annealing strategy the physics of clusters was investigated specific interest being in their geometries, stability, the bonding properties and finite temperature properties like melting. Exact diagonalization studies on strongly correlated systems using model hamiltonians like Hubbard and *t-j* were used to investigate the nature of ground and excited states and properties like spin charge separation, magnetic impurities in chains etc. Numerical algorithms for high speed and parallel computation especially for large matix diagonalization were studied and implemented. Other studies include electronic structure of complex materials, and positron annihilation and Compton profile studies on transition metal systems.

Memberships: Sr Assoc., ICTP, Italy.

Awards & Distinctions: UGC Meghnad Saha Award.

Kannan, Kazhiur Kothandapani

Elected: 1984
Specialization: X-ray and Macromolecular Crystallography; Macromolecular Computer Graphics
Date and Place of Birth: 30 September 1939; Ariyamangalam, Tamil Nadu
Parents: K S Kothandapani Iyengar and K Komalavalli
Spouse and Children: Ranganayaki; three *d* (Rama, Radha, Sudha)
Address: C2, Flat 3, Kendriya Vihar, CGEWHO Complex, Sector 11, Kharghar, Navi Mumbai 410 210, India
Tel. (022) 2774 4785 (R), Mobile: 98690 74785
email: kannan_99@yahoo.com

Education: Univ. of Madras: BSc 59, MSc 61; IISc, Bangalore: PhD 66.

Career: Indian Plywood Res. Inst.: Sr Sci. Offr 66–67; Wallensberg Lab., Uppsala Univ., Sweden, Biological Structure Group: Res. Assoc. 67–73, Docent in Molecular Biology 74–78; BARC, Bombay, Neutron Phys. Dn: Sci. Offr 78–79, Solid State Phys. Dn: Sci. Offr (H) 78–99; BARC: INSA Res. Fellow 99–2001.

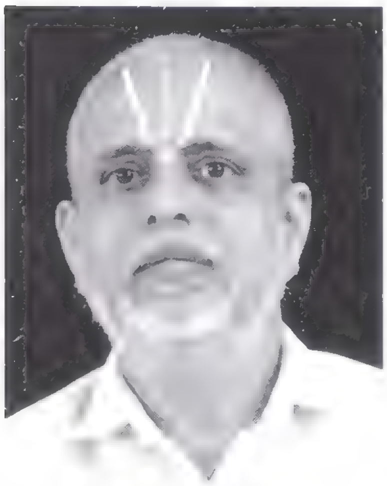
Scientific Work: Engaged in X-ray diffraction analysis of single crystals. Worked on biological macromolecules like proteins and viruses and uncovered the structure of human carbonic anhydrase I and II, their inhibitor and drug complexes and also of satellite tobacco necrosis virus – the first protein and virus structures from Sweden. Proposed the functional mechanism of the enzyme by pinpointing the important active-site residues of the proteins, which have been confirmed by site-directed mutagenesis experiments. First in India to have isolated, purified, crystallized and solved a protein structure, that of buffalo carbonic anhydrase II. Used synchrotron radiation for protein structure-function-drug interaction studies. Crystallized a multienzyme complex containing Rubisco from spinach. Also crystallized gelonin, an anti HIV protein and a ribosomal inactivating protein, and solved the structure of gelonin dimer. Initiated work on site directed mutagenesis of human carbonic anhydrase I to elucidate the function and folding of the enzyme. The enzyme was cloned and the expressed and purified enzyme showed full activity. The three-dimensional structure of the cloned crystallised carbonic anhydrase was elucidated.

Important Publications: **(1)** Crystal structure of human erythrocyte carbonic anhydrase B. Three dimensional structure at a nominal 2.2-A resolution (1975) *PNAS* **72**, 51. **(2)** X-ray crystallography technique in protein sequencing. *Molecular biology, biochemistry and biophysics. Advance methods in protein sequence determination* (1977) **25**, 75. **(3)** Imidezole binding to human carbonic anhydrase B and the mechanism of action of carbonic anhydrases (1977) *FEBS Lett.* **73**, 115. **(4)** Crystal structure of carbonic anhydrase II from erythrocyte of Indian Buffalo (*Bubalus bubalus*) (1989) *Curr. Sci.* **58**, 344. **(5)** Cloning and crystallographic analysis of human carbonic anhydrase I. (1997) *Curr. Sci.* **73**, 267–272.

Memberships: Fellow: INSA 87.

Awards & Distinctions: INSA Jawaharlal Nehru Birth Centenary Award 92.

Kannan, Varadachariar



Elected: 1992
Position: Prof., Pro-Vice-Chancellor, Univ. of Hyderabad
Specialization: Analysis and Topology
Date and Place of Birth: 24 October 1946; Thiruvaiyaru, Tamil Nadu
Parents: N Varadachariar and Rajalakshmi
Spouse and Children: Mani Paduka; two *s*
Address: School of Mathematics & Computer/Information Sciences, University of Hyderabad,
Hyderabad 500 046, India
Tel. (040) 2313 4001, 2301 0384 (O), (040) 2301 0702 (R), Mobile: 99491 93737
email: vksm@uohyd.ernet.in; URL: http://mathstat.uohyd.ernet.in/faculty/kannan/index.html

Education: Madras Univ.: BSc 64, MSc 67; Madurai Univ.: MPhil 68, PhD 71.

Career: Madurai Univ.: Lecturer 71–76, Reader 76–78; Univ. of Hyderabad: Reader 78–85, Prof. 85–, Pro-Vice-Chancellor 2006–.

Scientific Work: Contributions spread over general topology, categorical topology, topological dynamics, classification theorems and so on. Important among them are Rivlin's problem in approximation theory, reflectivity problem for complete sub-categories, etc. Elegant new proofs have been given, of such well-known results as Katetov's theorem Banach's question, Mazurkiewwicz–Sierpinski theorem on countable compact spaces, the theorem on thinness of free sub-groups, etc. The main body of research contains unifying theories, structure theorems, classification theorems and discovery of links between apparently unrelated areas of mathematics.

Important Publications: **(1)** Constructions and applications of rigid spaces-II (1978) *Am. J.* **100**, 1139–1172. **(2)** Ordinal invariants in topology (1981) *Memoirs of Am. Math-Soc.* **245**, 165. **(3)** Properties that are productive, closed-hereditary and surjective (1981) *Topology and its Applications* **12**, 141–146. **(4)** Spaces admitting transitive maps (2002) *Topology Proc.* **26**, 297–306. **(5)** Polynomials hardly commuting with increasing bijections (2008) *Semigroup Forum* **76**, 124–132.

Memberships: Fellow: INSA 94 • President: Indian Mathematical Soc. 92–93.

Awards & Distinctions: UGC National Lecturer 85–86 • ISCA Srinivasa Ramanujan Award.

Kant, Tarun

Elected: 2004
Position: Prof., IIT, Bombay
Specialization: Solid and Structural Mechanics; Finite Element Methods; Mechanics of Composite Materials and Structures
Date and Place of Birth: 1 July 1946; Ballia, Uttar Pradesh
Parents: Shambhu Nath and Krishna Devi
Spouse and Children: Rekha Srivastava; two *s* (Devanshu, Vishaal)
Address: Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, India
Tel. (022) 2576 7310, (022) 2576 7301 (O), (022) 2572 0491(R), Mobile: 98690 49218
email: tkant@civil.iitb.ac.in; URL: http://www.civil.iitb.ac.in/~tkant

Education: Univ. of Allahabad: BSc 62; IIT Bombay: BTech 67; IIT Kanpur: MTech 69; IIT Bombay: PhD 77.

Career: IIT Kanpur: Res. Asst 69; Builder's Assoc., Bombay: Design Engg 69–71; IIT Bombay: Lecturer 71–78, Asst Prof. 78–86, Assoc. Prof. 86–89, Prof. 89–, Head of Dept 2000–02, Dean of Planning 2001–03.

Scientific Work: Major scientific contribution has been to the mechanics of multilayered fibre reinforced plastic composite (FRPC) laminates, leading to the development of accurate two dimensional (2D) higher order C° analytical models. Demonstration of C° finite element (FE) formulation of higher order displacement theories is considered as a pioneering work by peers and is referred extensively in scientific literature. Recently, with associates has shown the effectiveness of a novel partial discretization methodology through marriage of FE and numerical integration (NI) approaches for evaluation of interlaminar stresses in layered composites.

Important Publications: **(1)** Numerical analysis of thick plates (1982) *Comp. Meth. Appl. Mech. Eng.* **31**, 1–18. **(2)** A refined higher-order C plate bending element (1982) *Comput. Struct.* **15**, 177–183. **(3)** Higher-order shear deformable theories for flexure of sandwich plates: finite element evaluations (1988) *Intl. J. Solids Struct.* **24**, 12, 1267–1286. **(4)** Dynamics of laminated composite plates with a higher-order theory and finite element discretization (1988) *J. Sound Vibration* **126**, 3, 463–475. **(5)** A novel finite element-numerical integration model for composite laminates supported on opposite edges (2007) *ASME J. Appl. Mech.* **74**, 1114–1124.

Memberships: Fellow: INSA 2007; INAE 99.

Awards & Distinctions: Jawaharlal Nehru Memorial Trust, UK Scholarship 79 • European Commission (EC) Post-doc (Sr) Fellowship • GOI Award 92–93 H H Mathur Award for Significant Research in Applied Sciences 2006.

Kanungo, Madhu Sudan

Elected: 1975
Position: Emeritus Prof., BHU, Varanasi
Specialization: Biochemistry and Molecular Biology of Development and Ageing; Neuroscience
Date and Place of Birth: 1 April 1927; Berhampur, Orissa
Parents: Krishna Chandra Mohanty and Sundaramoni Devi
Spouse and Children: Sarat; three s
Address: Department of Zoology, Banaras Hindu University, Varanasi 221 005, India
Tel. (0542) 230 7149 (O), (0542) 236 9340 (R), Mobile: 94153 03517
email: madhuskanungo@yahoo.com

Education: Utkal Univ.: BSc Hons 49; Lucknow Univ.: MSc 51; Univ. of Illinois: PhD 59.

Career: Ravenshaw College, Cuttack: Lecturer 52–61; Utkal Univ.: Reader 61–62; BHU, Varanasi: Reader 62–69, Prof. 70–87, Head 74–76, 80–82, Dean 86, Emeritus Prof. 93; Inst. of Life Sc., Bhubaneshwar: Dir 89; West Virginia Univ., USA: Vis. Prof. 78.

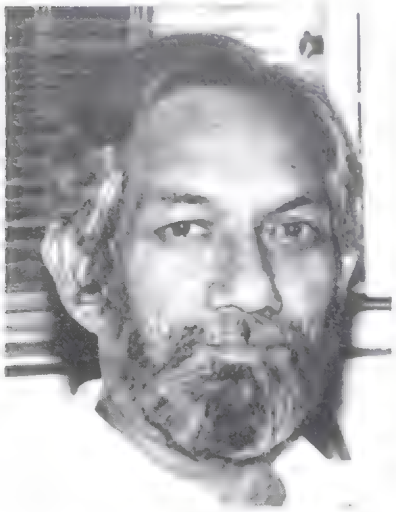
Scientific Work: Discovered that isoenzymes of enzymes change with age, so the expression of genes coding for their subunits change; primary structures of proteins do not change with age, so the primary structure of their genes do not change, but only their expression decreases after adulthood, causing lowering of enzyme levels and gradual deterioration of functions; and the decrease in expression of genes is due to alterations in the levels of transcription factors that bind to specific sequences of the promotor of genes that was experimentally shown using genetic engineering techniques. This supports the gene regulation theory of ageing.

Important Publications: **(1)** *Biochemistry of ageing* (1980) Academic Press, London. **(2)** *Genes and Ageing* (1994) CUP.

Memberships: Fellow: INSA 75; NASI 89 • WHO Expert Committee on Health of Elderly Persons • President: Assn of Gerontology, India 82–88.

Awards & Distinctions: S S Bhatnagar Prize 71 • FICC Award 89 • Intl Congress of Gerontology, Third Age Award by Mexico 89.

Kapahi, Vijay Kumar*



Elected: 1987
Specialisation: Radio Astronomy, Extragalactic Radio Sources; Cosmology
Date and Place of Birth: 21 January 1944; Quetta, Baluchistan
Parents: Dewan Chand Kapahi and Kaushalya Devi
Spouse and Children: Vinita; two s
Last Address: National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, Poona University Campus, Ganeshkhind, Post Bag No. 3, Pune 411 007, India
***Deceased:** 16 March 1999

Education: Univ. of Mysore: BSc 62; BARC Training School 63; Bombay Univ.: PhD 75.

Career: TIFR, Bombay: Res. Assoc. 63–71, Fellow 71–79, Reader 79–84, Assoc. Prof. 84–90, Prof. 90–94; TIFR, NCRA: Sr Prof. and Dir 94–99; Netherlands Foundation for Radio Astronomy, Netherlands: Vis. Sci. 76–78; Max Planck Inst. for Radio Astronomy, West Germany: Vis. Sci. 79; Natl Radio Astronomy Observatory, USA: Vis. Sci. 87–88; California Inst. of Technol., USA, Jet Propulsion Dn: NRC Sr Res. Sci. 88–89.

Scientific Work: Study of the cosmological implications of the angular sizes of radio sources has provided strong evidence for cosmological evolution in the physical sizes of powerful radio galaxies and quasars and has led to a better understanding of the epoch and luminosity dependence of the physical sizes of radio sources. Realized the importance of a new class of compact steep-spectrum radio sources and played a significant role in the study of unified schemes for active galactic nuclei based on the aspect dependence of relativistic beaming effects in their nuclear jets. Involved in a major observational programme to delineate the basic radio, optical and infrared properties of a complete sample of radio sources leading to the discovery of some of the most distant radio galaxies.

Memberships: Fellow: NASI; Maharashtra Acad. of Sci.

Awards & Distinctions: Hari Om Ashram Prerit Vikram Sarabai Res. Award 87 • S S Bhatnagar Prize 87.

Kapoor, Lachman Das

Elected: 1963
Specialisation: Pharmacognosy; Plant Anatomy and Medicinal and Aromatic Plants
Date and Place of Birth: 27 September 1916; Muzaffarabad, Jammu and Kashmir
Parents: Bhagwandas Kapoor and Jankidevi
Spouse and Children: Prakash; two *s*, one *d*
Address: 20, West Brook Court, Bridgewater, NJ 08807, USA
Tel. (+1-908) 252 9653 (R)

Education: Punjab Univ., Pakistan: BSc 37; BHU: MSc 40; London Univ.: PhD 58.

Career: Jammu and Kashmir: Forest Exploitation Offr 42–44; Drug Res. Lab., Jammu: Botanist 45–55; RRL, Jammu: Sci. 58–64; Natl Botanical Res. Inst., Lucknow: Sci. 64–76; Lupin Labs, Mumbai: Consultant 76–80.

Scientific Work: Introduced *Mentha arvensis* from Japan now grown as a commercial crop for distillation of mint oil and crystallization of menthol. Introduced *Anthemis tintoria, Hyssopus officinales, Matricarcia chamomilla, Mentha piperita* (black and white mints) *Solanum aviculare, Valeria officinalis*, etc. Commercial cultivation was initiated for *Pyrethrum, Atropa belladona, Hyoscymus niger, Dioscorea deltoidea, Matricarcia chamomilla*, ergot on rye. Anatomical studies on *Papaver somniferum, Dioscorea deltoidea* and seeds of umbelliferae, etc. Looked after the survey, drying, package, storage and marketing of minor forest products and cultivation of *Pyrethrum*. Supervised the technoeconomic survey and experimental cultivation of medicinal and aromatic plants in Jammu and Kashmir and Himachal Pradesh. Introduced ergot on rye which is now cultured on an industrial scale.

Important Publications: *Handbook of Ayurvedic medicinal plants* (1990) CRC Press Inc., Boca Raton, USA

Memberships: Member: London Inst. of Biology • Fellow: American Soc. of Pharmacognosy, USA; London Linnean Soc.

Kapoor, Shyam Sunder

Elected: 1974
Position: INSA Hon. Sci., BARC, Mumbai
Specialization: Nuclear Physics; Nuclear Radiation Detectors; Accelerator-based Research and Development and Applications in Nuclear Energy
Date and Place of Birth: 14 June 1938; Jalesar, Uttar Pradesh
Parents: Dau Dayal Kapoor and Jaidevi
Spouse and Children: Veena; one *s*, one *d*
Address: A/3, Banganga, Govandi Station Road, Deonar, Mumbai 400 088, India
Tel. (022) 2559 3651, 2559 5246 (O), (022) 2550 4301 (R), Mobile: 93235 04942
email: kss@barc.gov.in, kapoorss2002@yahoo.co.in

Education: Agra Univ.: BSc 56; MSc 58; BARC Training School: Graduation 59; Bombay Univ.: PhD 63.

Career: BARC, Bombay: Sci., Offr 59–74, Head, Fission Phys. Sec. 74–82, Proj. Dir 82, Head, Nucl. Phys. Dn 84–87, Assoc. Dir 87–90, Dir Phys. Group 90–2000, DAE Homi Bhabha Chair Prof. 2000–05, INSA Hon. Sci. 2008–; Lawrence Berkeley Lab, California: Postdoc Res. 64–66; Physikalisches Inst. der Univ., Germany: Vis. Sci. 80–81.

Scientific Work: Researched on the emission of prompt neutrons, gamma rays and occasionally emitted long range alpha particles in fission and on the dynamics of heavy ion fusion-fission through fragment angular distributions and measurement of ultra short fission dynamical times. Also researched in theoretical formulations of excitation energy dependence of nuclear shell effects and nuclear level densities and discovery of a new fast decay mode now known as pre-equilibrium fission phenomenon. Led the team for completion of the pelletron project, which led to a 14 MV tandem Van de Graaff (14 UD Pelletron) accelerator facility set up at the TIFR campus jointly by BARC and TIFR. Led experimental groups in the development and setting up of a variety of nuclear instruments/detector systems at the Pelletron beam lines for different research programmes. Pioneered techniques of energy dispersive X-ray analysis of materials in the country with indigeneously set up X-ray spectrometers in the early years of development. Led Indian team for international collaboration with PHENIX detector at RHIC, BNL, USA in relativistic heavy ion collisions. Was leader of the team to prepare a road map for the development of Accelerator Driven Subcritical Reactor System (ADS) in India.

Important Publications: *Nuclear radiation detector,* Wiley Eastern, Bangalore.

Memberships: Fellow: INSA 84; NASI 94.

Awards & Distinctions: S S Bhatnagar Prize 83 • Goyal Prize 96 • IPA RD Birla Award 2006.

Kappanna, Athibele Nanjappa*

Elected: 1934
Specialization: Electrochemistry
Date and Place of Birth: 3 August 1900; Chintamani, Kolar, Karnataka
Parents: A Nanjappa
Children: two *s*
Address: Department of Chemistry, College of Science, Nagpur, India
***Deceased:**

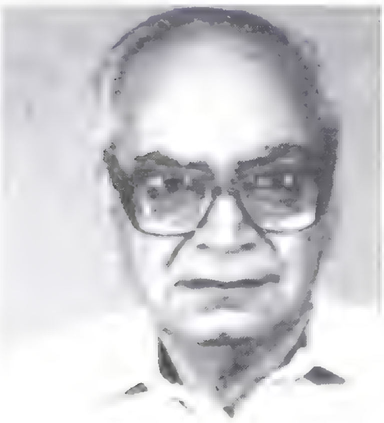
Education: Central College, Bangalore: BA 20; Dacca Univ., Dacca: MSc 23, DSc 29.

Career: Univ. of Dacca, Bengal, Dept of Chem.: Lecturer 23–29; College of Science, Nagpur: Asst Prof. and Prof. 29–55; S V Univ., Tirupati: Prof. 55–57; CECRI, Karaikudi: Asst Dir 57; CSMCRI: Acting Dir 57–62.

Scientific Work: Worked on electro-deposition of magnesium on mercury electrode, eletrochemical production of $Mg(OH)_2$ from $MgCl_2$ the corrosion of copper amd its alloys in brines and bitterns.

Memberships: Fellow: Indian Chemical Soc.

Kapur, Jagat Narain*



Elected: 1965
Specialization: Mathematical Modelling; Mathematics Education Research
Date and Place of Birth: 7 September 1923; Delhi
Parents: L N Kapur and Sukho Devi
Spouse and Children: Chandravati; one *s*, two *d* (Sanjay, Uma, Nina)
Last Address: C-766, New Friends Colony, New Delhi 110 065, India
***Deceased:** 4 September 2002

Education: Delhi Univ.: BA Hons 42, MA 44, PhD 58.

Career: Hindu College, Delhi: Lecturer 44–59; Univ. of Delhi: Reader 59–61; IIT Kanpur: Prof. 61–70, Sr Prof. 74–83, Hon. Prof. 83–86; Meerut Univ. Vice-Chancellor 70–74; IIT Delhi: Hon. Vis. Prof. 86–88, INSA Sr Sci. 87, 89, 98; JNU, New Delhi: Hon. Prof. 88–2002.

Scientific Work: Started research in ballistics of guns and rockets. Then followed research on a variety of subjects including fluid mechanics, hydrodynamics, non-Newtonian fluids, heat transfer, population dynamics, mathematical ecology, biomechanics, stochastic processes, image processing, measures of information, entropy optimization principles, operations research, number theory and geometry.

Memberships: Fellow: INSA 69; Inst. of Mathematics and its Applications, UK • President: Indian Soc. of Agri. Statistics; Indian Mathematical Soc.; Indian Sc. Congress Maths Section • President ISCA 68.

Awards & Distinctions: G P Chatterjee Award, Bharat Ganit Parishad 69; Indian Math Soc 71–72. Calcutta Math. Soc. 75; Assn of Math. Teachers of India 77–90; Indian Natl Congr. of Math. Edn 93.

Kapur, Prakash Chand

Elected: 1988
Specialization: Mineral Processing; Particulate Science and Technology; Mathematical Modelling and Waste Management
Date and Place of Birth: 3 July 1935; Lahore, Pakistan
Parents: Gurubakhsh Rai Kapur and Chand Rani
Spouse and Children: Rama; two *s* (Reuben, Pawan)
Addresas: R-485, New Rajinder Nagar, New Delhi 110 060, India
Tel. (011) 2874 2645 (R), Mobile: 98108 16383
email: pckapur@gmail.com, pck@vsnl.com

Education: Bombay Univ.: BSc Hons 53, MSc 55; Univ. of California, USA: MS 64, PhD 68.

Career: Burn & Co.: Res. Engineer 58–62; Colorado School of Mines, USA: Sr Project Res. Engineer 68–69; IIT Kanpur: Asst Prof. 69–73, Assoc. Prof. 73–75, Prof. 75–97; Tata Consultancy Services Consulting Adviser, 98–2008; Univ. of California, Berkeley; West Virginia Univ.; Univ. of Florida; Univ. of Melbourne: Vis. Prof. and Distinguished Scholar.

Scientific Work: Identified, for the first time, the mechanisms of growth in balling and granulation and developed kinetic models based on these mechanisms. Found the most general solution available thus for the difficult-to-solve integrodifferential equation of grinding and derived a master energy-size reduction law which encompasses all the classical empirical laws of this kind. Devised a number of schemes for parameter estimations in discrete size grinding models. Discovered an ingenious technique for the very difficult problem of numerical inversion of the Laplace transform from error corrupted data for the estimation of flotation rate constants and pioneered modelling of generalized flotation network and optimal synthesis and design of flotation circuit. Also developed a novel deterministic-stochastic hybrid dynamic control model of LD converter. Invented/developed a number of processes for recycle and utilization of industrial wastes, e.g. plaster of paris activated cement from slag; fineless concrete blocks from flyash pellets; refractory insulations from rice husk ash; low temperature alinite based cements from steel plant and other mineral wastes. Invented TiB, a tube-in-basket burner for rice husk for providing cheap energy source.

Important Publications: **(1)** Linear and nonlinear particle breakage processes in communication systems (2004) *Int. J. Miner. Process.* **74**, 317–327. **(2)** Kinetics and optimization of pressure filtration of dilute slurries by stage-wise batch tests (2004) *Int. J. Miner. Process.* **74**, 169–176. **(3)** Manufacture of eco-friendly and energy-efficient alinite cements from flyash and other bulk wastes (2004) *J. Resources Processing* (Japan) **51**, 8–13. **(4)** Rheological model for short duration response of semi solid metals (2005) *Mater. Sci. Eng.* **A393**, 1–2, 223–228. **(5)** Flocculation and dispersion of colloidal suspensions by polymers and surfactants: Experimental and modeling studies (2005) *Coagulation and Flocculation*, 2nd ed. Marcel Dekker, New York.

Memberships: Fellow: Indian Inst. of Ceramic Engineering; INAE; For. Assoc.: US Natl Acad. Eng.

Awards & Distinctions: Frank F Aplan Award of Engg Foundation, USA 93.

Kapur, Ravinder Lal*

Elected: 1977
Specialization: Clinical Psychiatry; Psychotherapy; Psychiatric Epidemiology; Yoga; Youth Psychology; Epidemiological Methodology in Psychiatric Research
Date and Place of Birth: 7 July 1938; Lahore
Parents: Mohan Lal Kapur and Vidyavati
Spouse and Children: Malavika; one *s*, one *d*
Last Address: National Institute of Advanced Studies, Indian Institute Science Campus, Bangalore 560 012 , India
***Deceased:** 24 November 2006

Education: Univ. of Punjab: MBBS 60, DPM 65; Univ. of Edinburgh: PhD 70; MRC Psych 73.

Career: Govt Mental Hospital, Amritsar: Asst Surgeon 61; Medical Coll. of VJ Hospital, Amritsar: House Physician 61–62, Asst Registrar 62; Medical College, Baroda: Lecturer in Psychiatry 65–66; Univ. of Edinburgh, Dept of Psychiatry: Res. Worker 67–70, EMPR Project: Field Dir 70–74; KMC, Manipal: Prof. of Psychiatry 74–75; NIMHANS, Bangalore: Prof. of Community Psychiatry 75–83, Head of Dept of Psychiatry 76–83; IISc, Bangalore: Vis. Prof. 83–92; Harvard Univ.: Vis. Prof. 85–86; NIAS, Bangalore, Dept of Health and Human Behaviour: Prof., Dy Dir, Head, Science Sec. Unit, Emeritus Prof. 87–2006.

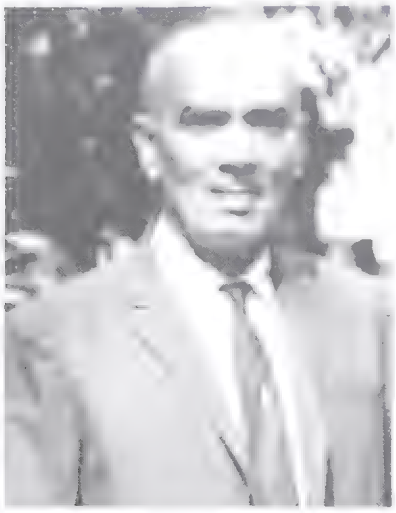
Scientific Work: Started the Department of Psychiatry in Kasturba Medical College, Manipal; Dept of Community Psychiatry at NIMHANS, Bangalore. Evolved innovative strategies for community involvement in mental health. Carried out intensive research on the psychobiological and experiential aspects of yoga. Worked on elucidating the nature of creativity in Indian scientists; and understanding the psycho-social construct of violence in a multi-centred study across the country.

Important Publications: **(1)** *Great University of Kota* (1976) Hogarth, London. **(2)** *Mind approaches to its understanding* (1979) NIMHANS, Bangalore. **(3)** *Psycho-therapeutic processes* (1979) NIMHANS, Bangalore.

Memberships: Fellow: Royal College of Psychiatrists; Natl Acad. of Medical Sci.

Awards & Distinctions: Marfatia Award 71 • Hari Om Ashram Alembic Award 77 • Psychiatric Award and Bhagwat Award of Indian Psychiatric Soc., Poona 82 • Eminent Psychiatrist Award 92–93.

Kapur, Shankar Nath*



Elected: 1934
Specialization: Forestry and Wood Science
Date and Place of Birth: 20 August 1895; Multan, Now in Pakistan
Parents: Shiv Nath Kapur and Tej Kaur
Spouse and Children: Sita; six *s*, three *d*
Last Address: Gun and Carriage Factory, Jabalpur, India
***Deceased:** 10 January 1972

Education: Govt College, Lahore: BSc; Univ. of Gothenberg: PhD 23.

Career: Govt College, Lahore: Student Demonstrator; Amrit Distilleries: Chemist, Manager; Secretary of State Services; Forest Res. Inst., Dehra Dun: Imperial Asst 24–28, Offr-in-charge of Wood Seasoning Section 28–40, Chief Res. Offr of Wood Working & Timber Mechanics; Govt of India, Ordinance Dept, Rifle Factory, Ichapore: Asst Manager 40; Gun and Carriage Factory, Jabalpur: Asst Manager.

Scientific Work: Research activities included studies on collapse and shrinkage of wood during seasoning. Designed furnace-heated kilns and electrical resistance type moisture meters for determining moisture content in wood. Conducted investigations on certain special unorthodox methods of seasoning such as kiln-drying of wood with ozonized air and the oscillatory method of drying refactory hard-woods. Work on metallization of wood by the vapourized spray technique evoked world attention at that time. Set up a number of timber seasoning kilns. Organized a number of wood-based industries all over India using well-treated, well seasoned woods for manufacturing war supplies such as ammunition boxes, tool handles, etc. Initiated work on finding substitutes for walnut for rifle furniture and substitutes for imported beech for army boot-lasts.

Memberships: Fellow: INSA 35.

Karandikar, K R*

Elected: 1948
Specialization: Zoology; Entomology
Date and Place of Birth: 17 March 1902; Ratnagiri, Maharashtra
Last Address: Department of Zoology, Karnatak College, Dharwar, India
***Deceased**

Education: Univ. of Bombay: BA Hons 24, BSc 25, MSc 27; Univ. of Edinburgh: PhD 30.

Career: ICAR, Baluchistan: Asst Locust Res. Entomologist 31–35; Inst. of Sci., Bombay, Dept of Zoology: Prof. 38, Head 47; MACS, Pune: Prof. Emeritus; Univ. of Poona: Prof. and Head of Zoology Dept; Karnatak College (now Univ.), Dharwar: Prof. and Head, Zoology Dept.

Scientific Work: Work on the genitalia of the desert locust based on embryonic and post-embryonic development forms is a solid contribution to the study of insect morphology. Research included study on external structure of the desert locust, insect pests of fruit trees in the Deccan, structure and bionomics of cat flea, ovaries of some loyal bony fishes and the marine pelecypods of Bombay.

Karandikar, Rajeeva Laxman

Elected: 1994
Position: Prof., Executive Vice-President, Cranes Software Intl Ltd, Bangalore; Adjunct Faculty, IISc
Specialization: Stochastic Calculus; Stochastic Finance; Stochastic Filtering Theory and Markov Processes; Monte Carlo Methods
Date and Place of Birth: 11 June 1956; Indore, Madhya Pradesh
Parents: Laxman V Karandikar and Indumati
Spouse and Children: Lata; one *s* (Prateek)
Address: Analytics, Cranes Software International Limited,
52, Bannerghatta Road, BTM Layout, 1st Stage, 1st Phase, Bangalore 560029, Karnataka.
Tel. (080) 4282 8279 (O), 4148 7273 (R), Mobile: 99805 70893
email: rkarandikar@gmail.com, rajeeva.karandikar@cranesoftware.com

Education: Indore Univ.: BSc 76; ISI, Calcutta: MStat 78, PhD 81.

Career: ISI, Delhi: Assoc. Prof. 84–89, Prof. 89–2006; Cranes Software: Executive President 2006–.

Scientific Work: Contributions include almost sure convergent approximations to quadratic variation of a Martingale, stochastic integral and solution of a stochastic differential equation. These approximations yield pathwise formulae. Developed theory of finitely additive Gaussian measures on a Hilbert space and used it to study problems in stochastic filtering theory. Also worked on the study of Markov processes via Martingale problems.

Important Publications: **(1)** *White noise theory of prediction, filtering and smoothing* (1988) Gordon and Breach, London. **(2)** *Introduction to option pricing theory* (2000) Birkhauser, Boston. **(3)** White noise calculus and nonlinear filtering theory (1985) *Ann. Probab.* **13**, 1033–1107. **(4)** Invariant measures and evolution equations for Markov processes characterized via Martingale problems (1993) *Ann. Probab.* **21**, 2246–2268. **(5)** A general principle for limit theorems in finitely additive probability (1982) *Trans. Am. Math. Soc.* **273**, 541–550.

Memberships: Fellow: INSA 2006.

Awards & Distinctions: INSA Young Scientist Medal 85 • S S Bhatnagar Prize 1999 • C R Rao Natl Award in Statistics 2001.

Karanth, Ullas Kota

Elected: 2008
Position: Dir, Centre for Wildlife Studies, Bangalore
Specialization: Carnivore Ecology; Animal Population Analysis; Conservation Biology
Date and Place of Birth: 21 September 1948; Puttur, Karnataka
Parents: Kota Shivarama Karanth and Leela
Spouse and Children: Prathibha Karanth; one *d*
Address: Centre for Wildlife Studies, 26–2, Aga Abbas Ali Road, Bangalore 560 042, India
Tel. (080) 2559 1747 (O), (080) 2559 1747 (R)
email: ukaranth@gmail.com, ukaranth@wcs.org

Education: Univ. of Mysore: BE 71; Univ. of Florida, USA: MS 88; Mangalore Univ.: PhD 93.

Career: Wild Life Conservation Soc., New York: Res. Fellow 88–92, Assoc. Conservation Sci. 93–97, Conservation Sci. 98–2003; Sr Conservation Sci. 2004–.

Scientific Work: Studied ecology of large carnivore species such as tigers, leopard and dhole since 1986. Has pioneered the developments on capture, handling and ratio tracking of large carnivores and also animal population sampling methods such as camera trapping, line transfer sampling, habitat occupancy estimation methodologies in India. Current research focuses on meta-population dynamics at landscape scales and mitigation of human-wild life conflicts.

Important Publications: **(1)** Prey selection by tiger, leopard and dhole in tropical forests (1995) *J. Animal Ecology* **64**, 439–450. **(2)** Estimating tiger densities in India from camera trap data using photographic captures and recaptures (1998) *Ecology* **79**, 2852–2862. **(3)** Behavioural correlates of predation by tiger, leopard and dhole in Nagarahole, India (2000) *J. Zoology* London **250**, 255–265. **(4)** Tigers and their prey: predicting carnivore densities from prey abundance (2004) *Proc. Natl Acad. Sci.* USA **101**, 4854–4858. **(5)** Assessing tiger population dynamics using photographic capture-recapture sampling (2006) *Ecology* **87**, 2925–2937.

Memberships: Soc. for Conservation Biology; The Wildlife Soc. USA • Assoc: National Institute of Advanced Studies.

Awards & Distinctions: Intl Earth Care Award, Sierra Club 2006 • J Paul Getty Conservation Award, WWF 2007.

Kartha, Chandrasekharan Cheranellore

Elected: 1995
Position: Prof. of Eminence, Rajiv Gandhi Centre for Biotechnology, Trivandrum
Specialization: Cardiovascular Pathology and Cardiovascular Biology; Cell-based Therapies
Date and Place of Birth: 14 December 1951; Ernakulam, Kerala
Parents: K Janardanan Kartha and C N Bharathy Kunjamma
Spouse: Mira Mohanty
Address: Disease Biology and Molecular Medicine,
Rajiv Gandhi Centre for Biotechnology,Poojappura, Thiruvananthapuram 695 014, India
Tel. (0471) 2529 448 (O), (0471) 243 4108 (R), Mobile: 99472 64108
email: cckartha@rgcb.res.in, cckartha@gmail.com

Education: Kerala Univ.: MBBS 74; AIIMS: MD 79.

Career: Sree Chitra Tirunal Inst. for Medical Sciences and Technol.: Lecturer 79–82, Asst. Prof. 82–85, Assoc. Prof. 86–88, Addl Prof. 88–93, Prof. & Head 93–2006, Sr. Prof. and Head 2006–08, Dean, Academic Affairs 2000–03; RGCBT, Thiruvananthapuram: Prof. 2009–.

Scientific Work: Distinguished as an investigative cardiac pathologist. Studies disengaged the aetiopathogenesis of endomyocardial fibrosis, a tropical cardiomyopathy, from a confusing network of hypotheses involving autoimmunity, serotonin toxicity and hypereosinophilia and placed it in the context of a geochemical cause. Original observations, also led to focus attention on the role of cardiac fibroblasts in the pathogenesis of the disease and to the suggestion that endomyocardial fibrosis is an interstitial heart disease. Has evaluated through experimental and epidemiological studies, the geochemical hypothesis on causation of endomyo-cardial fibrosis. Also credited with establishing the first molecular cardiology division in India. Among the pioneers in investigating the role of endocardial endothelium in the regulation of myocardial interstitium and the mechanisms of arterial calcification induced by hypervitaminosis D. In recent times has focussed attention on the role of hyperglycemia induced endothelial dysfunction in the increased risk for atherosclerosis in type II diabetes mellitus and in developing cell based therapies for myocardial ischemia.

Important Publications: **(1)** *Endomyocardial fibrosis* (1993) Oxford University Press, New Delhi, 302pp. **(2)** *Modern medicine: Evolution and prospects* (2000) The State Institute of Languages, Thiruvananthapuram, 133pp. **(3)** 1, 25 dihydroxyvitamin D3 receptor is upregulated in aortic smooth muscle cells during hypervitaminosis D (2002) *Life Sci.* **70**, 1777–1788. **(4)** Endocardial endothelial cells stimulate proliferation and collagen synthesis of cardiac fibroblasts (2007) *Cell Biochem. Biophys.* **47**, 65–72. **(5)** Immortalization and characterization of porcine ventricular endocardial endothelial cells (2007) *Endothelium* **14**, 35–43.

Memberships: Fellow: NASI; NAMS; Intl Acad. Cardiovascular Sci. 20; Pulmonary Vascular Res. Inst. • Life Member: Intl Soc. for Heart Research; Cardiovascular Soc. of India; Indian Assn of Pathologists and Microbiologists; Soc. of Biotechnologists (India); Kerala Acad. of Sciences and Soc. for Sci. Values.

Kartha, Gopinath*

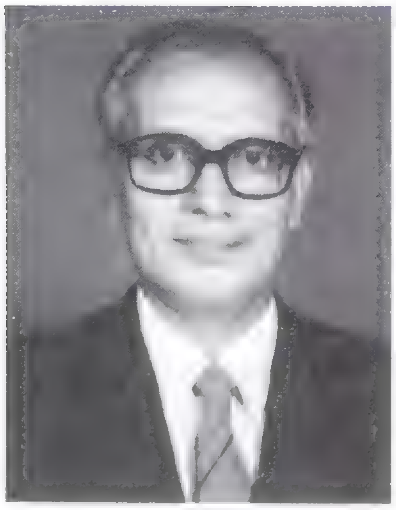
Elected: 1974
Specialization: X-ray and Protein Crystallography
Date and Place of Birth: 26 January 1927; Shertally, Kerala
Spouse and Children: Indira; four *s* (Krishnan, Govindan, Sivan, Vijayan)
Last Address: Rosewell Park Memorial Institute, Buffalo, New York, USA
***Deceased:** 18 June 1984

Education: Presidency College, Madras: BS 46, MA 48; Andhra Univ., Waltair: MS 49; Univ. of Madras: PhD 53.

Career: Univ. of Madras, Physics Dept: Postdoc Fellow 53–55; Cavendish Lab., UK: Postdoc Fellow 55–56; Natl Res. Council, Canada: Postdoc Fellow 56–58; Roswell Park Memorial Inst., USA: Sr Cancer Res. Sci. 59–61, Assoc. Cancer Res. Sci. 61–67, Principal Cancer Res. Sci. 67–2003; Niagara Univ.: Res. Prof. 68; Prot. Inst., Japan: Vis. Prof. 72.

Scientific Work: Researched in X-ray crystallography particularly on the structure of barium chlorate monohydrate. Contributed greatly to the ribonuclease project. One of the first to recognize importance of anomalous dispersion in solving macromolecular structures. Conducted extensive studies on ribonuclease. Studied X-ray diffraction patterns of collagen fibres obtained from various sources. Along with others proposed a triple helical model for collagen. Theoretical contributions on direct methods and isomorphous replacement methods are of fundamental importance in crystallography.

Kartha, Vasudevan Bhaskaran



Elected: 1990
Specialization: Atomic, Molecular and Laser Spectroscopy; Synchrotron Spectroscopy; Applications of Lasers in Medicine and Biochemistry
Date and Place of Birth: 1 January 1934; Perumpavoor, Kerala
Parents: G Vasudevan Kartha and Bhavani Kunjamma
Spouse and Children: Shantha; one *s*, one *d*
Address: 21, Udayagiri, Opposite Telecom Factory, Sion-Trombay Road, Deonar, Mumbai 400 088, India
Tel. (022) 2556 4908 (R), Mobile: 98679 63960
email: sbkartha@hotmail.com, bhasikartha@gmail.com

Education: Kerala Univ.: BSc 53, MSc 57; BARC Training School 58; Bombay Univ.: PhD 67.

Career: BARC, Bombay: Res. Sci. 58–93, Head, Spectroscopic Dn 88–93; Atomic Energy of Canada and Natl Res. Council of Canada, Canada: Colombo Plan Fellow 61–62, Postdoc Fellow 67–69, Vis. Sci. 75; Chalmers Univ. of Technol., Goteborg, Sweden: Vis. Sci. 75: Natl Res. Council, Canada: Vis. Res. Offr 82; Natl Inst. of Sc. and Technol. (USA): Vis. Sci. 90; MIT Cambridge, USA: Vis. Sci. 93–97; Centre for Laser Spectroscopy, Manipal Acad. of Higher Education: Head 97–2004; Centre for Atomic and Molecular Spectroscopy, Manipal Univ.: Adviser 2004.

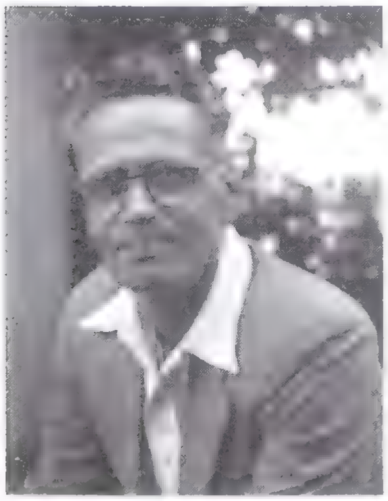
Scientific Work: Researched in analytical spectroscopy, developing methods for trace analysis of materials essential for atomic power programmes. Extensive research in molecular spectroscopy, development of computer programmes for spectroscopy applications, laser spectroscopy studies in high resolution molecular spectroscopy, and laser selective reactions leading to an understanding of relaxation processes in discharges and laser isotope separation, dynamics of condensation and cluster formation in supersonic molecular beams, mechanics of atom molecule interactions in excited states, etc. Initiated several spectroscopy research programmes for synchrotron radiation spectroscopy. Involved in the study of biomedical application of laser spectroscopy, proteomics. Developed laser spectroscopy techniques for ultra trace analysis, early detection of various types of cancers, etc.

Important Publications: **(1)** Serum protein profile study of normal and cervical cancer subjects by high performance liquid chromatography with laser induced fluorescence (2008) *J. Biomed. Optics* **13**, 5, 054062-1-10. **(2)** Influence of pore structure and framework Al sites on the state of benzene molecules entrapped in the zeolites of BEA type: *In situ* IR spectroscopic study (2007) *J. Phys. Chem.* **C111**, 27, 9927. **(3)** Principal component analysis and artificial neural network analysis of oral tissue fluorescence spectra: Classification of normal, pre-malignant and malignant pathological conditions (2006) *Biopolymers* **82**, 152–166. **(4)** Detection and identification of single DNA molecule using surface enhanced Raman spectroscopy (SERS) (1998) *Phys. Rev.* **E57**, 6, R6281-84. **(5)** Infrared diode laser absorption study of free jets of NH_3 (1989) *J. Mol. Struct.* **194**, 117–133.

Memberships: Fellow: INSA 94; Laser and Spectroscopy Soc. of India • Member: Indian Soc. of Radiation and Photochemical Sciences; Indian Laser Assn; Indian Soc. of Analytical Scientists; Indian Physics Assn.

Awards & Distinctions: INSA Prof. Rangadhama Rao Memorial Lecture Award 91 • IACS S C Sirkar Memorial Lecture Award 92 • UDCT Golden Jubilee Fellow Award 93 • Indian Soc. for Radiation and Photochemical Sciences Life Time Achievement Award 2002 • Laser and Spectroscopic Society of India • Prof. Nandalal Singh Memorial Lecture Award 2002.

Karve, Dinakar Dhondo*



Elected: 1943
Specialization: Physical Organic Chemistry
Date and Place of Birth: 13 July 1899; Pune, Maharashtra
Parents: Dhondo Keshav Karve and Anandi
Spouse and Children: Irawati Karmarkar; one *s*, two *d*
Last Address: Wadia Library, Fergusson College, Pune 411 004, India
***Deceased:** 5 July 1980

Education: Univ. of Bombay: BSc 19, MSc 22; Univ. of Berlin, Germany: PhD 24.

Career: Ferguson College, Poona: Prof. of Chem. 25–59, Principal 46–57; American Inst. of Indian Studies, Pune: Dir.

Scientific Work: Published a number of papers on organo-physical subjects. Was interested in social and political issues and writing books based on translations of excerpts from autobiogrpahies of well-known personalities.

Memberships: Member: Academic Council, Board of Studies in Chemistry.

Kasbekar, Durgadas Prabhakar

Elected: 2005
Position: Sci., CCMB, Hyderabad
Specialization: Neurospora Genetics; Dictyostelium and Plant Antimicrobials; Sterol Reductases
Date and Place of Birth: 18 July 1956; Poona, Maharashtra
Spouse and Children: Anita; one *s*, one *d* (Bhaskar, Ambika)
Address: Centre for Cellular & Molecular Biology, Uppal Road, Hyderabad 500 207, India
Tel. (040) 2719 2697 (O), (040) 2717 3903 (R)
email: kas@ccmb.res.in

Education: BITS Pilani: MSc 78; State Univ. of New York, USA: 83; Albert Einstein College of Medicine, USA: Postdoc Assoc. 89.

Career: CCMB: Sci. 89–.

Scientific Work: Developed innovative tools and approaches to identify genes required for genome defence against repeat-inducted mutations in fungi. Among the first to clone a class of widely conserved sterol biosynthesis genes and demonstrate the sterol biosynthetic activity of lamin B, an important protein of the vertebrate nuclear envelope. Additionally, proposed a novel plant-microbe interaction wherein plant-derived chemicals recruit soil amoebae to clear bacteria from the vicinity of root lesions. In earlier research; developed methods for genetic analysis in *Dictyostelium discoideum* and showed that in *Drosophila,* modest changes in sodium channel number cause large changes in resistance to pyrethroid insecticides.

Awards & Distinctions: Rockefeller Foundation Biotechnology, Career Fellowship 91–93 • Rajiv Gandhi Research Grant for Innovative Ideas in Science and Technology 93 • Raman Research Fellowship 2000.

Kashyap, Shiv Ram*

Elected: 1934
Specialization: Sexual Generation of *Equisetum*; Liverworts of the Western Himalayas; the Flora of Tibet
Date and Place of Birth: 6 November 1882
Last Address: Punjab University, Punjab, India
***Deceased:** 26 November 1934

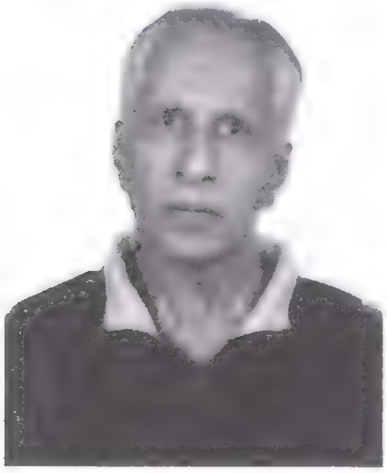
Education: Univ. of Panjab: DSc hc; Univ. of Agra: Medical Diploma 1904, MSc 1909; Univ. of Canterbury: BA 12.

Career: Medical Services, United Provinces: 1905–07; Govt College, Lahore: Asst Biology Prof. 1907–19; Panjab Univ.: Univ. Prof. of Botany 19–34.

Scientific Work: Described the structure and development of the sexual generation of *Equisetum debile*, one of the Indian members of the family of horsetails, growing at Lahore, which was quite different from what was known up to that time in many species worked out by European and American investigators. Described 4 new genera and over 30 new species of liverworts. Not only greatly expanded this theory of evolution by reduction and placed it on a strong basis, but actually followed out the various lines of evolution.

Memberships: Member: Univ. of Punjab Syndicate • President: Indian Botanical Soc. 25; Botany Sec. of Indian Science Congress • Fellow: Punjab Univ.

Kasturi, Tirumalai Rangachar



Elected: 1976
Specialization: Synthetic, Structural and Mechanistic Organic Chemistry; Spectroscopy
Date and Place of Birth: 29 September 1931; Nanjangud, Karnataka
Parents: T Ahobalachar and T Kamalamma
Spouse and Children: Prema; two *d* (Rama, Chandrika)
Address: 51, Sharada Colony, West of Chord Road, III Stage, IV Block
Basaveshwaranagar, Bangalore 560 079, India
Tel. (080) 2348 0349 (R), Mobile: 96325 45604

Education: Mysore Univ.: BSc Hons 52; Bombay Univ.: MSc 55, PhD 58; IISc, Bangalore: DSc 93.

Career: IISc, Bangalore: Postdoc 57–59, Lecturer 61–67, Asst Prof. 67–70, Assoc. Prof. 70–73, Prof. 73–92, INSA Sr Sci. 92–97; Univ. of Maine, Ohio: Postdoc 59–61; Arizona State Univ.: Res. Assoc. 65–67, Vis. Sci. 72.

Scientific Work: Synthesized several natural as well as modified steroids, terpenoids and heterocyclic compounds. Elucidated the mechanisms of several novel reactions. Established the structures of novel products by spectral methods.

Important Publications: **(1)** Applications of IR spectroscopy in organic chemistry (1963) *Chemical applications of IR spectroscopy,* Academic Press. **(2)** A method for the direct conversion of esters to ethers (1960) *J. Org. Chem.* **25**, 875. **(3)** Isomeric bicyclo[3, 2, 1] octane-2, 5-diones, NMR as a probe for configuration assignment (1982) *J. Org. Chem.* **46**, 5007. **(4)** Oxidation of dispironaphthalenones with DDQ – Synthesis of tropone derivatives and DDHQ diesters (1992) *Tetrahedron* **48**, 5481. **(5)** Reaction of spironaphthalenones with hydroxylamine hydrochloride (1993) *Tetrahedron* **49**, 113.

Memberships: Member: Sigma Xi • Fellow: INSA 79.

Awards & Distinctions: IISc Tata Chem Prof. 90–92 • UGC National Lecturer in Chemistry 85–86 • Exchange Sci., INSA–Royal Soc., London 83; INSA–USSR Acad. • Devaprabhakara Memorial Oration 82.

Kasturirangan, Krishnaswamy

Elected: 1986
Position: Member, Planning Commission, Govt of India, New Delhi
Specialization: High Energy Astronomy; Satellite Technology
Date and Place of Birth: 24 October 1940; Ernakulam, Kerala
Parents: C M Krishnaswamy and Alamelu
Spouse and Children: Lakshmi; two s (Rajesh, Sanjay)
Address: Planning Commission, Room No. 119, Yojana Bhavan,
Parliament Street, New Delhi 110 001
Tel. (011) 2375 2614 (O), (011) 2309 6568 (R)
email: k.rangan@nic.in; URL: http://www.nias.res.in/faculty-kasturirangan.php

Education: Bombay Univ.: BSc Hons 61; MSc 63; Gujarat Univ.: PhD 71.

Career: PRL, Ahmedabad: Res. Scholar 63–67, Res. Assoc. 67–71; ISRO Satellite Centre, Bangalore: Physicist 71–73, Head, Phys. Group/Secretary, Aryabhata Project Management Bd 74–78, Bhaskara-I Project Engineer (Spacecraft) 75–76, Bhaskara-II Project Dir 79–83, IRS-1A Project Dir 80–89, Dy Dir 84–86, Assoc. Dir 86–89, Dir 90–94, Secretary, Dept of Space 94–2003; NIAS: Dir 2004–2009; Planning Commission: Member 2009–.

Scientific Work: Determined the spectrum of the cosmic X-ray background at hard X-ray energies. Investigated the effects of cosmic X-ray sources in the earth's atmosphere and published the first detailed papers on the subject. Worked in the area of X-ray and gamma ray instrumentation which have been flown in the Indian satellites *Aryabhata*, *Bhaskara* and *SROSS*. Identified several detailed characteristics of the burst sources as well as an enigmatic event with a precise periodicity of 235 milli seconds through observations by instruments flown on *SROSS* C1 and C2.

Important Publications: **(1)** *Space – An innovative route to development* (2001) 4th JRD Memorial Lecture, The Associated Chambers of Commerce & Industry of India, New Delhi, Published by ISRO. **(2)** *Space science in India – two recent initiatives: Sir J C Bose Memorial Lecture at Royal Soc.* (2004) London ISRO. **(3)** India's space enterprise – A case study in strategic thinking and planning (2006) *Dr K R Narayanan Oration*, Australian National Univ., Canberra, Australia. **(4)** Space technology for humanity: A profile for the coming 50 years (2007) *Science Direct – Space Policy* **23**, 159–166. **(5)** Indian space programme. A multidimensional perspective (2007) *Curr. Sci.* **93**, 12.

Memberships: Member: Intl Acad. of Astronautics; Intl Astronomical Union • Fellow: NASI 82; INSA 89; INAE 89; TWAS 96 • Academician: Pontifical Acad. of Sciences, Vatican City.

Awards & Distinctions: Hari Om Ashram Dr. Vikram Sarabhai Prerit Award 81 • Padma Shri 82 • S S Bhatnagar Award 83 • O P Bhasin Foundation Award 88 • Padma Bhushan 92 • G M Modi Award 2002 • Padma Vibhushan 2002 • Officer of the Legion d'honneur, President of the French Republic 2002 • Asutosh Mookerjee Memorial Award 2004 • ISPRS Brock Medal of International Soc. of Photogrammetry and Remote Sensing 2004 • Allan D Emil Memorial Award, IAF 2004 • Lifetime Achievement Award, Asia-Pacific Satellite Communications Council, Singapore 2005 • Theodore Von Karman Award, IAA, France 2007 • Jewel of Ruia, Alumni Assn 2007.

Katoch, Vishwa Mohan

Elected: 2007
Position: Secretary, Govt of India (Dept of Health Res.) & Dir General, ICMR, New Delhi
Specialisation: Molecular Biology of Mycobacteria; Taxonomy;
Epidimiology of Mycobacterial Diseases; Functional Genomics of Mycobacteria
Date and Place of Birth: 18 February 1953; Hamirpur, Himachal Pradesh
Parents: Kehar Singh and Lilawathi
Spouse and Children: Kiran; one *d*
Address: Indian Council of Medical Research, Ramalingaswamy Bhavan, Ansari Nagar, New Delhi 110 029, India
Tel. (011) 2658 8204, 2658 9620 (O), (011) 2649 8214 (R), Mobile: 94122 62721
email: secydhr@icmr.org.in, dg@icmr.org.in

Education: Himachal Pradesh Univ., Shimla: MBBS 74; AIIMS: MD 78.

Career: Safdarjung Hospital: Jr Resident 76; AIIMS: Jr Resident 77–78; Tuberculosis Res. Lab, USA; Central JALMA Inst. of Leprosy: Res. Offr and Head 79–82 Sr Res. Offr & Head, 83–87, Asst Dir & Head 87–92, Dy Dir & Head 92–97, Dy Dir (Sr. Grade) & Head 97–2001, Dir 2001–08; ICMR, New Delhi: Dir Gen. 2008–.

Scientific Work: Carried out research work on metabolic, taxonomic, *in vitro* methods and molecular biology of mycobacteria with reference to *M. lepra*. Laboratory had been developed as a self-sufficient collection and typing centre for mycobacteria. Worked on application of genetic recombination techniques to mycobacterial research under Indo–U K exchange programme.

Memberships: Fellow: Intl Tropical Disease Res. 81–82; NASI 2004; INSA 2009; NAMS.

Awards & Distinctions: Sher-I-Kashmir Sheikh Mohd Abdulla Memorial Oration Award 89 • C G S Iyer Oration Award 91 • 8th Erwin Stindl Memorial Oration Award 91 • S C Agarwal Oration Award 94 • Manu Patel Memorial Prize 98 • JALMA Trust Fund Oration Award 99 • IAMM Endowment Prize 2003 • Ranbaxy Sc. Foundation Award 2003 • Y S Sharma Gold Medal for Sr Sci. 2004 • IAMM (UP) U C Chaturvedi Life Time Achievement Award 2009.

Kaul, Romesh Kumar

Elected: 1993
Position: Prof., IMSc, Chennai
Specialization: Particle Physics; Quantum Field Theory; Quantum Gravity
Date and Place of Birth: 1 August 1952; Srinagar, Jammu & Kashmir
Parents: Kashinath Kaul and Bhagirathi
Spouse: Anju
Address: The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai 600 113, India
Tel. (044) 2254 3317 (O), (044) 2445 3508 (R), Mobile: 94449 24065
email: kaul@imsc.res.in

Education: Univ. of Delhi: BSc Hons 71, MSc 73, PhD 76.

Career: CSIR, New Delhi: Jr Res. Fellow, Sr Res. Fellow 73–77; TIFR, Bombay, Theoretical Phys Group: Vis. Fellow 77; Univ. of Texas, USA, Centre for Particle Theory: Res. Assoc. 77–78; IISc, Bangalore, Centre for Theoretical Studies: Vis. Sci. 78, Sr Res. Fellow, Asst. Prof. 80–87, Assoc. Prof. 87–92; CERN, Switerland, Theoretical Phys Dn: Sci. Assoc. 83–84; The Inst. of Mathematical Sci., Madras: Prof. 92–; Free Univ. of Berlin, Germany: Alexander von Humboldt Fellow 78–80; Univ. of Utrecht, The Netherlands, Inst. of Theoretical Phys: European Fellow of Alexander von Humboldt Foundation 79–80.

Scientific Work: One of the first to propose and show that supersymmetry solves the naturalness problem (or equivalently, gauge hierarchy problem) in field theories involving elementary scalar fields, thus providing the most compelling theoretical reason for supersymmetry to exist in Nature. Also worked in the areas of topological quantum field theories, such as Chern–Simons theories. Obtained complete and explicit solutions to non-Abelian Chern–Simons theories. In the Chern–Simons field theoretic framework, has done exhaustive studies in theory of knots and links by constructing a whole variety of new representations of generators of the groupoid of coloured-oriented braids and also constructed three-manifold invariants. Obtained widely recognized leading universal correction in the form of −3/2 log (area) beyond the Bekenstein–Hawking area law for black hole entropy. Provided a topological interpretation for the Barbero–Immirzi parameter as the coefficient of Nieh–Yan topological invariant term in the Lagrangian density for the theory of gravity.

Important Publications: **(1)** Gauge hierarchy in a supersymmetric model (1982) *Phys. Lett.* **109B**, 19–24. **(2)** Cancellation of quadratically divergent mass corrections in globally supersymmetric spontaneous broken guage theories (1982) *Nucl. Phys.* **B199**, 36–58. **(3)** Logarithmic correction to the Bekenstein–Hawking entropy (2000) *Phys. Rev. Lett.* **84**, 5255–5257. **(4)** Three-manifold invariants from Chern–Simons field theory with arbitrary semi-simple guage groups (2001) *Commun. Math. Phys.* **217**, 295–314. **(5)** Logarithmic correction to the Bekenstein–Hawking entropy of the BT2 black hole (2001) *Class. Quantum Grav.* **18**, 2877–2886.

Memberships: Fellow: INSA 98.

Awards & Distinctions: INSA Young Scientist Medal 82 • IASc Assoc. 84–87 • J C Bose National Fellow, Department of Science and Technology, Government of India 2008–13.

Kaul, Sharika Nandan

Elected: 2003
Position: Sr Prof., Univ. of Hyderabad
Specialization: Condensed Matter Physics; Phase Transitions and Critical Phenomena; Magnetism and Magnetic Materials; Disordered Systems; Percolation
Date and Place of Birth: 4 August 1949; Srinagar, Jammu & Kashmir
Parents: S N Kaul and Laxkugi
Spouse and Children: Manju; two *s*
Address: School of Physics, University of Hyderabad, Hyderabad 500 046, India
Tel. (040) 2313 4322 (O), (040) 2301 0686 (R)
email: kaulsp@uohyd.ernet.in

Education: J & K Univ.: BSc 67; IIT Kharagpur: MSc 69, DIIT 70, PhD 74.

Career: DMRL, Hyderabad: JSO 74–75; IIT Kanpur: Proj. Sci. 75–78; Ruhr Univ., Germany; AVH Fellow 79, Sr Sci. 79–83, AVH Fellow 83–84; Max Planck Inst., Germany: Max Planck Fellow 84; Univ. of Hyderabad: Reader 84–87, Prof. 87–.

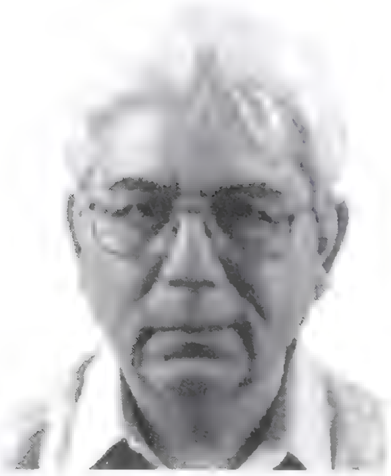
Scientific Work: The areas of research actively pursued during the past three decades include: electrical, thermal and galvanomagnetic transport as well as magnetism in amorphous and crystalline magnetic alloys; phase transitions and critial phenomena in spin systems with or without quenched disorder; spin glasses and reentrant spin systems; percolation in dilute magnetic systems; electron-electron interactions and weak localization effects in disordered systems; ferromagnetic shape memory effects; low temperature physics; quantum criticality; superconductivity; magnetism of low-dimensional systems/nanomagnetism.

Important Publications: **(1)** Stress-induced and thermoelastic properties of Ni-Fe-Al melt-spun ribbon (2008) *Appl. Phys. Lett.* **93**, 141904-1-141904-3. **(2)** Dynamic elastic properties and magnetic susceptibility across the austenite-martensite transformation in site-disordered ferromagnetic Ni-Fe-Al alloy (2008) *Appl. Phys. Lett.* **92**, 101924-1-101924-3. **(3)** Resonant microwave absorption determination of characteristic magnetic length in magnetic-field-annealed vitroperm (2007) *Appl. Phys. Lett.* **91**, 033105-1-033105-3. **(4)** Thermoelastic martensitic transformation in ferromagnetic Ni-Fe-Al alloys: Effect of site disorder (2006) *Appl. Phys. Lett.* **89**, 093119-1 093119-3. **(5)** Anomalous positive magnetoresistance at low temperatures in nanocrystalline Ni Al (2006) *Appl. Phys. Lett.* **88**, 193125-1-193125-3.

Memberships: Fellow: INSA 2007; Inst. of Physics, London.

Awards & Distinctions: Alexander von Humboldt Fellow • MRSI Medal.

Kaw, Predhiman Krishan



Elected: 1974
Position: Dir, IPR, Gandhinagar
Specialization: Plasma Physics
Date and Place of Birth: 15 January 1948; Srinagar, Jammu & Kashmir
Parents: Premnath and Somawati
Spouse and Children: Saroj; two *s*, one *d*
Address: Institute for Plasma Research, Bhat, Gandhinagar 362 428, India
Tel. (079) 2396 9275 (O), (079) 2692 7571-72 (R), Mobile: 98250 69415
email: kaw@ipr.res.in, predh@yahoo.com
URL: http://www.ipr.res.in//~theory/kaw_sir_home_page/kaw.htm

Education: Agra Univ.: BSc 62, MSc 64; IIT, Delhi: PhD 66; Princeton Univ.: Postdoc Res. 69.

Career: IIT, Delhi: Postdoc Fellow 66–67; Princeton Univ.: Postdoc Assoc. 67–69, Asst Prof. 69–71; PRL, Ahmedabad: Assoc. Prof. 71–74, Prof. 74–75; Princeton Univ.: Sr Res. Physicist and Prof. 75–82; Japan Soc. for Promotion of Sc.: Vis. Prof. 74; Inst. of Plasma Res., Gujarat: Dir 86–.

Scientific Work: Made original contributions to nonlinear physics of plasma especially in theory of parametric instabilities, laser interaction with matter, physics of drift waves, coalescence instabilities, ionospheric irregularities, ionization and radiative phenomena at tokamak edge, physics of quark gluon plasmas, vortices and intermittency in tokamak turbulence, etc.

Important Publications: **(1)** Filamentation and trapping of intense electromagnetic waves in plasmas (1973) *Phys. Fluids* **16**, 1522. **(2)** Parametric coalescence instability of magnetic islands (1977) *Phys. Fluids* **20**, 72. **(3)** Current maintenance in Tokamaks by use of synchrotron radiation (1982) *Phys. Rev. Lett.* **48**, 1730. **(4)** Intermittency in Tokamak edge turbulence (1992) *Phys. Rev. Lett.* **69**, 1375. **(5)** Collective modes in a strongly coupled dusty plasma (2001) *Phys. Plasmas* **8**, 5, 1870–8; Experimental observations of transverse shear waves in strongly coupled dusty plasmas (2002) *Phys. Rev. Lett.* **88**, 17, 175001-1-4.

Memberships: Fellow: IASc 74; INSA 84; NASI 89; Am. Phys. Soc. 80.

Awards & Distinctions: Padma Shri 85; • S S Bhatnagar Prize 86 • Univ. of Ghent, Belgium: DSc (hc) 91 • IIT, Delhi, Distinguished Alumni Award 92 • Indian Phys. Assn R D Birla Award 2002 • INSA Albert Einstein Res. Prof. 2006 • TWAS Physics Prize 2008.

Kedharnath, Subramaniam*

Elected: 1984
Specialization: Genetics, Cytogenetics and Forest Tree Breeding
Date and Place of Birth: 10 October 1921; Pusa, Bihar
Parents: L S Subramaniam and Subbalakshmi
Spouse and Children: Seethalakshmi; three *s*, two *d* (Rajnath, Viswanath, Satyanarayanan, Subbulakshmi, Rukmani)
Last Address: 12A, 1st Cross Road, V Layout, Ramalinga Nagar, K K Pudur Post, Coimbatore 641 038, India
***Deceased:** 6 December 2004

Education: Univ. of Madras: BSc Hons 42, MA 44, MSc 46; Wisconsin Univ., USA: PhD 57.

Career: Univ. of Madras: Res. Fellow 43–46; IARI, New Delhi: Res. Asst in Cytogenetics 46–51, Asst Wheat Breeder 51–55, Linseed Breeder 57–59; Forest Res. Inst., Dehradun: Forest Geneticist and Head Forest Genetics Branch 59–78; Biological Res.: Dir 78–80; Kerala Forest Res. Inst., Peechi: Dir 82–86.

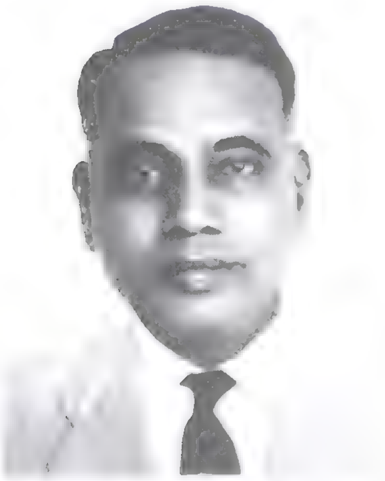
Scientific Work: Contributed to studies on cytogenetics of some interspecific hybrids of *Saccharum officinarum*; mutable loci and transposable elements associated with such loci in maize; cytogenetics and breeding of oil seed crops such as sesame and linseed, breeding for rust resistance in the early maturing wheats. Pioneered work on the genetics and breeding of some trees of forestry importance like teak, chirpine, eucalyptus to mass produce genetically improved seeds through seed production areas and establish clonal seed orchards.

Important Publications: **(1)** The improvement of the sesame crop in India (1949) *Indian J. Genet.* **9**, 59–71. **(2)** Transposition and the stability of modulator in maize (1958) *Genetics* **19**, 201–209. **(3)** Wood quality improvement through genetic engineering (1975) *Van-Vigyan* **13**, 29–35.

Memberships: Fellow: NAAS; INSA 80.

Awards & Distinctions: Seth Memorial Award, Indian Soc. of Tree Scientists 89.

Kelkar, Purushottam Kashinath*



Elected: 1974
Specialization: Electrical Engineering
Date and Place of Birth: 1 June 1909; Dharwar, Karnataka
Parents: Kashinath Hari and Gangoobai
Spouse and Children: Krishna Bal; one *s*, one *d*
Last Address: Chhaya Building, 514A, H R Mahajani Marg, Matunga, Bombay 400 019, India
***Deceased:** 23 October 1990

Education: Univ. of Bombay: BSc Hons 31; IISc, Bangalore: DIISc 34; Univ. of Liverpool: PhD 37.

Career: IISc, Bangalore: Lecturer 37–43; Victoria Jubilee Tech. Inst., Bombay: Prof. and Head of Electrical Engg 43–56; IIT, Bombay: Planning Offr 56–58, Dy Dir 58–59, Dir 70–74; IIT, Kanpur: Dir 59–70.

Scientific Work: The impulse testing equipment designed and fabricated was the first of its kind in Asia. Responsible for the visionary quiet revolution brought about in science and engineering education and in the organization of academic institutions in India. Had the exclusive honour of being appointed to start two institutions which have achieved international recognition (IIT Bombay and IIT Kanpur). Innovations in IIT Kanpur were borne out of a firm conviction that engineering education could not be relevant for future technological developments unless it was firmly rooted in science and that science, engineering, social amd moral sciences, languages and linguistics, history, technical facts, fine arts, all must be weighted ingredients of curricula for true excellence. In IIT, put into practice ideas like a common science-based core curriculum, semester system, tutorial system, letter grades, continual and fully internal evaluation, course-wise passing, collective decisions, flexible administration geared to the needs of the academic elements.

Memberships: Fellow: London Inst. of Electrical Engineers.

Awards & Distinctions: Padma Bhushan 70.

Kembhavi, Ajit Keshav

Elected: 2009
Position: Director, IUCAA, Pune
Specialization: High Energy Astrophysics; Active Galactic Nuclei, External Galaxies, Virtual Observatory
Date and Place of Birth: 16 August 1950; Hubli, Karnataka
Parents: Keshav Ramrao Kembhavi and Vanita
Spouse and Children: Asha; one child
Address: Inter-University Centre for Astronomy and Astrophysics, Post Bag 4, Ganeshkhind,
Pune 411 007, India
Tel. 020 25604100 (O), 020 25604403 (R), Mobile: 98229 79161
email: akk@iucaa.ernet.in

Education: Ramanarain Ruia College; Mumbai: BSc 70, MSc 72; TIFR, Mumbai: PhD 79.

Career: TIFR, Mumbai: Res. Assoc. 72–80, Fellow 82–88; Inst. of Astronomy, Cambridge: Res. Assoc. 80–82; IUCAA, Pune: Asst Prof., Assoc. Prof., Prof. 88–2004, Distinguished Prof. 2004–09, Dir 2009–.

Scientific Work: Interests are in normal and active galaxies, quasers, pulsars and so on. Presently working on the morphology of galaxies using ground-based and space data at optical and near-infrared wavelengths, with special attention to lenticulars and luminous compact galaxies. Also works on warm absorbers in active galaxies. Principal Investigator of the Virtual Observatory, India project, through which along with collaborators develops applications for virtual observatories.

Important Publications: **(1)** X-ray quasars and the X-ray background (1982) *Mon. Not. Roy. Astr. Soc.* **198**, 921. **(2)** Evolution of stellar binaries formed by tidal capture. (1987) *Astro. Astrophys.* **184**, 164. **(3)** A near-infrared photometric plane for elliptical galaxies and bulges of spiral galaxies. (2000) *Astrophys. J.* **531**, L103. **(4)** Unravelling the morphologies of luminous compact galaxies using the HST/ACS GOODS survey. (2007) *Astro. Astrophys.* **461**, 103. **(5)** Properties of warm absorbers in active galaxies: a systematic stability curve analysis (2009) *Mon. Not. Roy. Astr. Soc.* **393**, 83.

Memberships: President: Indian Assn for General Relativity and Gravitation 2005–06 • Fellow: NASI 2007.

Awards & Distinctions: IASc Assoc. 83–86 • UGC Hari Om Award 2005

Kempanna, Chokkappa

Elected: 1978
Specialization: Genetics and Plant Breeding
Date and Place of Birth: 16 May 1928, Bangalore
Address: No. 82, 2nd Main, III Cross, Ganganagar, Bangalore 560 032, India
Tel. (080) 2343 6457 (R)
email: ckempanna@yahoo.com

Education: BSc; IARI: Assoc.; Cambridge Univ., UK: PhD.

Career: Karnataka State Govt, Dept of Agri.: Asst Botanist, Lecturer, Cotton Breeder, Cytogeneticist 52–65; Univ. of Agri. Sci., Bangalore, Dept of Agri. Botany: Assoc. Prof., Head 65–71; Indian Council for Agri. Res., Dept of Commercial Crops: Asst Dir General 71–88; Dept of Crop Sci.: Dy Dir General 79–80.

Scientific work: Establishment of closer inter-genomic relationships of hexaploid wheats (*Triticum aestivum*) through the application of chromosome 5B genetic repressor mechanism. Studied complex pattern of genetic diversity of Ragi/fingermillet (*Eleusine coracana*) in African germplasm and isolation of three elite selections viz., HES-9-7, HES-9-8 and HES-9-9, which accelerated the breeding of high yielding varieties of Ragi in India. Studied theoritical possibility of aneuploid breeding in tetroploid cottons.

Memberships: Member: Indian Soc. of Genetic and Plant Breeding; Indian Soc. of Cytologists and Geneticists; British Genetical Soc.

Kenkare, Umakant Waman

Elected: 1986
Specialization: Biochemistry; Molecular Biology; Neurochemistry
Date and Place of Birth: 3 March 1927; Sanvordem, Goa
Parents: Waman Kenkare and Indira
Spouse and Children: Meera; two *s*
Address: D/3 Deeplakshmi Cooperative Housing Society Ltd, Hatiskar Marg, Prabhadevi Sea Beach,
Prabhadevi, Mumbai 400 025, India
Tel. (022) 2430 9881 (R)

Education: Univ. of Bombay: BSc 49, MSc 52, PhD 61.

Career: Vanderbilt Univ., Nashville, USA, Dept of Microbiology, School of Medicine: Res. Assoc. 61–63; Yale Univ., New Haven, USA, Dept of Molecular Biophys. & Biochem.: Res. Staff Biophysicist 63–65; Indian Veterinary Res. Inst., UP, Nutrition Din.: Biophysicist 66–67; TIFR, Bombay, Molecular Biology Unit: Fellow 67–75, Reader 75–81, Assoc. Prof. 81–86, Prof. 86–87; Vanderbilt Univ., USA, Dept of Physiology, School of Medicine: Vis. Sci. 77–79;

Univ. of Delhi, Dept of Biochem.: CSIR Emeritus Sci. 88; Natl Facility for Animal Tissue and Cell Culture, Dept of Biotechnol., Pune: CSIR Emeritus Sci. 88–92, Consultant 92–94.

Scientific Work: Contributions relate to the structure and function of brain hexokinase, which are identification of active site residues of the enzyme; description of the molecular mechanisms of hexokinase regulation; mapping the substrate and inhibitor binding sites on the enzyme using methods of nuclear magnetic resonance; settling a long-standing controversy – whether glucose-6-phosphate inhibition is at an allosteric site – by establishing that the inhibition occurred at the active site. Established that the mammalian hexokinase isoenzymes, of which brain hexokinase is type I, are coded for by independent genes located on four different chromosomes in rat. Provided one of the earliest demonstrations of the reversibility of protein denaturation using yeast hexokinase as a model. Showed the structural similarity of an enzyme in solution and in the crystalline state using pancreatic ribonucleases as the system. Work on alkaline phosphatase provided a good illustration of how kinetic methods could lead to the identification of active site residues of an enzyme.

Important Publications: **(1)** Reaction of brain hexokinase with a substrate-like reagent, *Biochemistry* **19**, 4058–4064. **(2)** Brain hexokinase has no pre-existing allosteric site for glucose-6-phosphate, *J. Biol. Chem.* **263**, 15492–15497. **(3)** Mapping of glucose and glucose-6-phosphate binding sites on bovine brain hexokinase (1990) *Eur. J. Biochem.* **188**, 9–14. **(4)** Dimerisation of brain hexokinase induced by its regulator glucose-6-phosphate (1974) *J. Biol. Chem.* **249**, 5984–5988. **(5)** Assignment of hexokinase types 1, 2, 3 (Hk1, 2, 3) and glucokinase (Gck) to rat chromosome band 20q11, 4q34, 17q12 and 14q21, respectively, by *in situ* hybridisation (1997) *Cytogenet. Cell Genet.* **77**, 266–267.

Memberships: Fellow: INSA 90.

Kesavan, Srinivasan

Elected: 2008
Position: Prof., IMSc, Chennai
Specialization: Partial Differential Equations; Homogenization; Isoperimetric Inequalities
Date and Place of Birth: 17 January 1952; Chennai, Tamil Nadu
Parents: Narayana Srinivasan and Sarojini
Spouse and Children: Swethambari; one *s*, one *d* (Narayan, Nikhila)
Address: The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai 600 113, India
Tel. (044) 2254 3209, (044) 2254 3166 (O), (044) 2641 2839 (R), Mobile: 94440 82801
email: kesh@imsc.res.in; URL: http://www.imsc.res.in/~kesavan

Education: Univ. of Madras: BSc 71; IIT Madras: MSc 73, Univ. Pierre et Marie Curie, Paris: PhD 79.

Career: TIFR: Res. Asst 74–79, Fellow 79–89, Reader 89–93; Inst. of Math. Sci.: Assoc. Prof. 93–98, Prof. 98–.

Scientific Work: Asymptotic analysis of vibrations of thin elastic structures – plates, shells and rods. Homogenization of optimal control problems governed by second order elliptic partial differential equations. Isoperimetric inequalities in partial differential equations and symmetry of solutions.

Important Publications: **(1)** *Topics in functional analysis and applications* (1989) New Age International. **(2)** *Nonlinear functional analysis, A first course* (2004) Texts and Readings in Mathematics (TRIM) **28**, Hindustan Book Agency. **(3)** *Symmetrization and applications* (2006) Series in Analysis, 3, World Scientific. **(4)** *Functional analysis* (2009) Texts and Readings in Mathematics (TRIM), 52, Hindustan Book Agency.

Memberships: Fellow: NASI 97.

Awards & Distinctions: Tamil Nadu Scientist Award 98 • C L Chandra Award 99

Kessar, Satinder Vir

Elected: 1975
Position: Prof. Emeritus and INSA Hon. Sci., Panjab Univ., Chandigarh
Specialization: Synthetic & Mechanistic Organic Chemistry
Date and Place of Birth: 9 June 1932; Hoshiarpur, Punjab
Parents: Durga Dass and Susheela Devi
Spouse and Children: Urmi; two *d*
Address: Department of Chemistry, Panjab University, Chandigarh 160 016, India
Tel. (0172) 254 1435 (O), (0172) 274 7308 (R)
email: svkessar@pu.ac.in

Education: Panjab Univ.: BSc Hons 53, MSc 54; Univ. of California: PhD 58

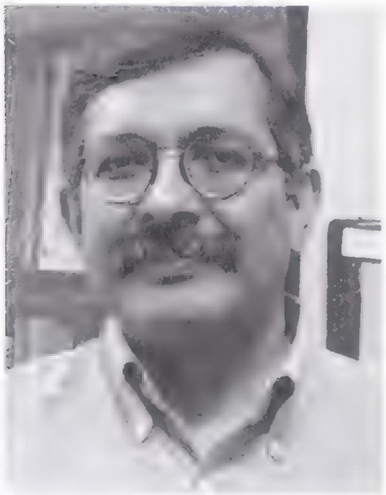
Career: Punjab Engg College: Asst Prof. 58–59; Punjab Univ., Dept of Chem.: Lecturer 59–63, Reader 63–75, Prof. 75–92, CSIR Distinguished Chair 92–97.

Scientific Work: Contributions include total syntheses of a number of complex natural products including steroids and isoquinoline alkaloids; introduction of new and widely useful synthetic methodologies, e.g. benzyne cyclizations of anils, regio-controlled reactions of dianions, generation of reactive intermediates through fluorodesilylation, Lewis acid-promoted elaboration of tertiary amines, development of a synthetically useful photocyclization and successful search for some illusive hydrogen transfer reactions in the excited state.

Memberships: Fellow: INSA 77; NASI 96; TWAS 98.

Awards & Distinctions: S S Bhatnagar Prize 72 • UGC-Hari Om Ashram Award 88 • Jawaharlal Nehru Sc. Award 92 • Golden Jubilee INSA Medal • Goyal Prize • INSA Meghnad Saha Medal.

Khakhar, Devang Vipin



Elected: 1996
Position: Prof. and Dir, IIT Bombay
Specialization: Granular Flow and Mixing; Polyurethanes; Rod-like Polymers
Date and Place of Birth: 7 April 1959; Mumbai, Maharashtra
Parents: Vipin H Khakhar and Rekha
Spouse and Children: Natasha Patel; one *s*, one *d* (Arjun, Aditi)
Address: Department of Chemical Engineering, Indian Institute of Technology Bombay,
Powai, Mumbai 400 076, India
Tel. (022) 2572 3488, 2576 7001 (O), (022) 2287 4148 (R), Mobile: 98206 05351
email: khakhar@iitb.ac.in, director@iitb.ac.in; URL: http://www.che.iitb.ac.in/faculty/dvk.html

Education: IIT Delhi: BTech 81; Univ. of Massachusetts, USA: PhD 86.

Career: IIT Kanpur: Vis. Faculty 86; IIT Bombay: Lecturer 87, Asst Prof. 87–90, Assoc. Prof. 90–96, Prof. 96.

Scientific Work: Work focussed on simple prototype mixers (rotating cylinders) to gain insight into the fundamental physics for the case of dry granular materials. Currently applying some of the basics to the understanding of calcination and clinker formation in rotary kilns. Rodlike polymers can be spun into ultra high strength fibres (e.g. Kevlar) which find application in the manufacture of cables, tyre cord, reinforcement for composites, bullet-proof fabrics, etc. Due to their anisotropic shape such polymers are easily oriented by shear fields. Investigating the effect of such orienting fields applied during polymerization, by means of experiment, theory and Brownian dynamics simulations. Studies on to obtain an understanding of the effect of formulation and processing conditions on the dynamics of formation, structure and final properties of free rise and moulded foams.

Important Publications: **(1)** Enhancement of polymerization rates of rigid rodlike polymers by shearing (1992) *Nature* **360**, 53–55. **(2)** 3D Chaos visualized (1998) *Science* **281**, 683–686. **(3)** Suppression of coalescence in surfactant stabilized emulsions by shear flow (1999) *Phys. Rev. Lett.,* **83**, 2461–2464. **(4)** Scaling relations for granular flow in quasi-two-dimensional rotating cylinders (2001) *Phys. Rev.* **E,64**, 031302. **(5)** Solid-liquid transition in a granular shear flow (2004) *Rev. Lett.,* **93**, 068001.

Memberships: Fellow: INSA 2003; INAE 2001.

Awards & Distinctions: Amar Dye-Chem Award 93 • S S Bhatnagar Prize 97 • Swarnajayanti Fellowship, DST 98 • Herdillia Award 99 • Excellence in Teaching Award, IIT Bombay 2001.

Khanna, K L*

Elected: 1936
Specialization: Sugar Cane
Last Address: Radha Soami Colony, P O Dera Baba Jaimal Singh, Dist Amritsar, Punjab, India
***Deceased:** 1 August 1976

Education: BSc, MSc, Assoc., IARI.

Career: Punjab Dept of Agriculture: 30–32; Sugar Cane Res. and Development, Bihar: Sugar Cane Specialist 32–47, in-charge Dev. 47–51, Dir 51.

Khanolkar, Vasant Ramji*

Elected: 1934
Specialisation: Pathology
Date and Place of Birth: 13 April 1895; Konkan, Maharashtra
Parents: Ramji Dhondji Khanolkar
Spouse and Children: Marsel; one *s*, one *d* (Mahesh, Shakuntala)
Last Address: Indian Cancer Research Centre, Bombay 400 012, India
***Deceased:** 29 October 1978

Education: London Univ.: Graduation in Medicine 18, MD 23; Univ. of Melbourne, Australia: LLD hc.

Career: Univ. Coll. Med. School, London: Asst Bacteriologist 20–23; Grant Medical College: Prof. of Pathology 24–26; Seth G S Medical College: Prof. of Pathology and Bacteriology; King Edward VII Memorial Hospital, Bombay: Pathologist 26–41; Tata Memorial Hospital, Bombay, Laboratories and Res.: Dir 41–51, Hon. Dir 51–78; Univ.

of Poona, Dept of Medicine: Dean 51–54; Indian Cancer Res. Centre, Bombay: Founder Dir 52–63, Natl Res. Prof. of Medicine 63–73; Bombay Univ.: Vice Chancellor 60–63.

Scientific Work: Scientific work in cancer research in India won international fame. Made valuable contributions to the knowledge of incidence of cancer in relation to usage. Made intensive surveys on the habits, customs and usages in different regions of the country to understand the causes of cancer. Was one of the first to identify chewing of tobacco pan and betel nuts as a cause of oral cancer. Work on histopathology of human tumours is well known. Range of work extended to leprosy, reproductive physiology, blood groups and medical education. Made significant contributions on the racial distributions of blood groups with particular reference to the incidence of the Rh-factor.

Memberships: Member: Pathological Soc. of Great Britain; Medical Council of India • President: International Cancer Res. Commission • Fellow: INSA 46; Natl Acad. of Medical Sci.; Soc. of Biological Chemists; Royal College of Physicians, Edinburgh 60; USSR Acad. of Med. Sci.: For. Mem. 61.

Awards & Distinctions: Padma Bhushan 55.

Khare, Avinash Vasant

Elected: 1991
Position: Sr Prof., Inst. of Physics, Bhubaneswar
Specialization: High Energy and Elementary Particle Physics; Supersymmetric Quantum Mechanics; Nonlinear Dynamics
Date and Place of Birth: 20 June 1945; Indore, Madhya Pradesh
Parents: Vasant N Khare and Rohini
Spouse and Children: Puspha; one *s*, one *d*
Address: Institute of Physics, Sachivalaya Marg, Bhubaneswar 751 005, India
Tel. (0674) 230 1058/207 (O), (0674) 230 1495 (R)
email: khare@iopb.res.in

Education: Vikram Univ.: BSc 64; Indore Univ.: MSc 66; SINP Kolkata: Dipl. 67; Univ. of Calcutta: PhD 71.

Career: SINP Kolkata: Postdoc 72; Univ. of Tokyo, Japan: Mombushoo Fellow 73–74; Inst. of Phys., Bhubaneswar: Lecturer 75–79, Reader 80–84, Assoc. Prof. 85–91, Prof. 91–2003, Sr Prof. 2003–; Univ. of Manchester, Nuffield Fellow 80–81.

Scientific Work: Discovered the charged vortex solutions in gauge theories with Chern–Simons term. Explored the interplay between solitons and chaos in gauge theories. Explored in detail a phi 6 field theory model to understand structural phase transitions. Showed that using supersymmetry and shape invariance, a class of potentials can be solved algebraically. Discovered new cyclic and local identities for Jacobi elliptic functions. Did important work on fractional statistics, PT-invariant complex potentials.

Important Publications: **(1)** *Fractional statistics and quantum theory* (1997, 2005) World Scientific, Singapore. **(2)** *Supersymmetry in quantum mechanics* (2001, 2005) World Scientific, Singapore. **(3)** Supersymmetry in quantum mechanics (1995) *Phys. Rep.* **251**, 267. **(4)** Charged vortices in Abelian Higgs model with Chern–Simons term (1986) *Phys. Lett.* **B174**, 420. **(5)** Cyclic identities involving Jacobi elliptic functions (2002) *J. Math. Phys.* **43**, 3798.

Memberships: Fellow: INSA 96.

Awards & Distinctions: UGC Meghnad Saha Award 98.

Khoshoo, Triloki Nath*

Elected: 1961
Specialization: Genetics; Plant Breeding; Environmental Sciences
Date and Place of Birth: 7 April 1927; Srinagar, Jammu & Kashmir
Parents: Sansar Chand and Vanmala
Spouse and Children: Mohini; two s
Last Address: Tata Energy Research Institute, Habitat Centre, Lodi Road, New Delhi 110 003, India
***Deceased:** 11 June 2002

Education: Panjab Univ.: BSc Hons 45, MSc Hons 46, PhD 58.

Career: Panjab Univ., Dept of Botany: Lecturer Sr Lecturer/48–62; Jammu & Kashmir Univ., Postgraduate Dept of Botany: Reader and Head 62–64; Natl Botanical Res. Inst., Lucknow: Asst Dir 64–74, Dy Dir 74–76, Dir 76–82; Govt of India, Dept of Environment: Secretary 82–85; Council of Sci. & Industrial Res.: Distinguished Sci. 85–90; Tata Energy Res. Inst., New Delhi: Jawaharlal Nehru Fellow 91–93, Hon. Disting. Fellow 93–2000.

Scientific Work: Made significant contributions to the genetic-evolutionary understanding of several non-agricultural economic plants (including ornamentals). Applied this knowledge for their improvement and has evolved over 30 cultivars of ornamentals, many of which are in nursery trade. Elucidated the genetic system of gymnosperms (softwoods in particular). Basic concepts developed are known for their originality and have stood the test of time. Work on biomass production on degraded lands has considerable socio-economic implications at the grassroots. This work has led to ecological revival of derelict lands with a new state of human-made biodiversity in natural locations. Also involved in paraphrasing sustainable development in the Indian context, and spearheaded science and technology-based environmentalism.

Memberships: Member: Intl Task Force on Tropical Forestry; World Resources Inst., Washington; National Environmental Council of India • Fellow: INSA 77; Indian Soc. of Genetics and Plant Breeding; Indian Botanical Soc.; Indian Acad. of Agricultural Sci.; Inst. of Engineers; TWAS 94 • President: ISCA 85–86.

Awards & Distinctions: Om Prakash Bhasin Foundation Award 89 • Padma Bhushan 92 • ICAR Rafi Ahmed Kidwai Medal 77 • Indian Bot. Soc. Birbal Sahni Gold Medal 82 • UGC Natl Lecturer 81 • Bio-Energy Soc. of India 85–86; NASI 85–86; Indian Soc. of Genetics and Plant Breeding 86 • Sanjay Gandhi Award 86 • Indira Gandhi Environ. Prize 93 • UNESCO Gandhi Medal 96 • ISCA Centurial Prize 99.

Important Publications: **(1)** Cytology of conifers (1956) *J. Genet.* 165–185. **(2)** Polyploidy in gymnosperms (1959) *Evolution* **13**, 24–39. **(3)** Biosystematics of *Sisybrium irio* complex (1958) *Caryologia* **11**, 109–157. **(4)** Basic chromosome numbers in *Silence* and *Siaponaria* (1960) *Nature* **186** (4722), 412–413. **(5)** *Environmental concerns and strategies* (1984) Indian Environment Soc. pp 1–296.

Khurana, Jitendra Paul

Elected: 2006
Position: Prof., Univ. of Delhi, South Campus
Specialization: Photoperception and Signal Transduction in Plants; Structural and Functional Genomics; Plant Hormone Action
Date and Place of Birth: 30 October 1954; Amritsar, Punjab
Parents: Daya Nand Khurana and Lajwanti
Spouse and Children: Paramjit; one *s*, one *d* (Sachin, Ridhi)
Address: Department of Plant Molecular Biology, University of Delhi South Campus, Benito Juarez Road,
New Delhi 110 021, India
Tel. (011) 2411 5126 (O), (011) 2411 9090 (R), Mobile: 98113 51217
email: khuranaj@genomeindia.org

Education: Univ. of Delhi: BSc 73; Kurukshetra Univ.: MSc 75; Univ. of Delhi: PhD 82.

Career: Univ. of Delhi: Sci. 82–85; Smithsonian Inst., USA: Postdoc Fellow 85–86; Michigan State Univ., USA: Res. Assoc. 86–88; Univ. of Delhi: Reader 88–96; Prof. 96–, Head, Dept of Plant Mol. Biol. 95–98 2001–2004; Waksman Inst., USA: Vis. Prof. 2001.

Scientific Work: Major research interest revolves around light perception and signal transduction in plants. Initial work on *Arabidopsis* mutants contributed towards the identification of the blue light receptor, phototropin 1, which remained elusive for over a century. The blue light sensing cryptochrome 1 (CRY1) from *Brassica napus* has been functionally characterized and its role demonstrated in controlling plant height, a trait of great agronomic significance. Several rice genes have been functionally characterized, including a polycomb group gene, *OsiEZ1*, topoisomerase 6 subunit genes, and auxin-inducible genes of *AUX/IAA* family, involved in regulating plant development and/or conferring stress tolerance. The characterization of families of homeobox, bZIP and F-box protein encoding genes from rice and their (whole genome microarray based) expression analysis has revealed their role in reproductive development. A significant contribution has been made towards accomplishing the task of sequencing long arm of Chr 11 of rice as a part of an international programme.

Important Publications: **(1)** Cryptochrome from *Brassica napus* is upregulated by blue light and controls hypocotyl/stem growth and anthocyanin accumulation (2006) *Plant Physiol.* **141**, 61–74. **(2)** *Arabidopsis* cytokinin-resistant mutant, *cnr1*, displays altered auxin responses and sugar sensitivity (2006) *Plant Mol. Biol.* **62**, 409–425. **(3)** The over-expression of putative topoisomerase 6 genes from rice confers stress tolerance in transgenic *Arabidopsis* plants (2006) *FEBS J.* **273**, 5245–5260. **(4)** F-box proteins in rice. Genome-wide analysis, classification, temporal and spatial gene expression during panicle and seed development, and regulation by light and abiotic stress (2007) *Plant Physiol.* **143**, 1467–1483. **(5)** A genomic survey and gene expression analysis of basic leucine zipper (bZIP) transcription factor family in rice (2008) *Plant Physiol.* **146**, 333–350.

Memberships: Fellow: NASI 2000; INSA 2004; NAAS 2005 • President: Indian Photobiology Soc. 2003–05.

Awards & Distinctions: Shri Ranjan Memorial Lecture Award 2006–07 • H E Street Memorial Lecture 2007–08, PTCA, India • INSA Panchanan Maheshwari Memorial Lecture Award 2008.

Khush, Gurdev Singh

Elected: 1991
Specialization: Plant Genetics and Breeding; Biotechnology
Date and Place of Birth: 22 August 1935; Roorkee, Punjab
Parents: Katar Singh and Pritam Kaur
Spouse and Children: Harwant Kaur Grewal; one *s*, three *d* (Ranjiv, Manjeev, Sonia, Kiran)
Address: 39399, Blackhawk Place, Davis CA 95616-7008, USA
Tel. (+1 530) 750 2440 (O), (+1 530) 750 2440 (R)
email: gurdev@khush.org

Education: Punjab Agri. Univ.: BSc Agri 55; Univ. of California, USA: PhD 60.

Career: Univ. of California, USA: Res. Asst 57–60, Asst. Geneticist 60–67; IRRI, Philippines: Plant Breeder 67–72, Head Plant Breeding Dept 72–85, Principal Plant Breeder and Head Plant Breeding, Genetics and Biochemistry Dn 86–2002; Univ. of California, Adjunct Prof. Davis 2002–.

Scientific Work: Studied the cytotaxonomic relationships of cultivated rye and wild species of genus *Secale*. Carried out cytogenetic explorations of tomato genome through induced deficiencies and primary, secondary, tertiary, telo and compensating trisomics. Associated linkage groups of rice with respective chromosomes through primary trisomic analysis. Identified numerous genes for disease and insect resistance. Developed more than 300 high-yielding varieties of rice which have revolutionized rice production in the world. Helped develop a uniform system of numbering rice chromosomes; helped set up Rice Genetic Cooperative for enhancing international cooperation in rice genetics.

Important Publications: **(1)** *Cytogenetics of aneuploids* (1973) Academic Press, New York. **(2)** *Host plant resistance to insects* (1995) CAB Intl. Wallingford. **(3)** *Rice biotechnology* (1991) CAB Intl Wallingford. **(4)** *Plant breeding lectures* (1984) China National Rice Res. Inst., Hangzhou. **(5)** Genetic activity in a heterochromatic chromosome segment of tomato (1964) *Science* **145**, 1432–1434.

Memberships: Fellow: INSA 78; NASI 2003 • For. Assoc.: US National Acad. of Sci.; Genetic Soc. of America; Crop Sc. Soc. of America; New York Acad. of Sci.; National Acad. of Agri. Sci.; Third World Acad. of Sci.; Royal Soc. of London; Chinese Acad. of Sci. 2002; Russian Acad. of Agri. Sci. 97.

Awards & Distinctions: Borlaug Award 77 • Philippines Bureau of Plant Industry Achievement Award 85 • Japan Prize 87 • American Soc. of Agronomy International Award 89 • Univ. of California Emil M Mark International Award 90 • World Food Prize 96 • Wolf Prize in Agriculture 2000 • Padma Shri Award 2000 • Scientific and Technological Cooperation Award, Govt of China.

Kilpady, Sripadrao

Elected: 1953
Specialization: Mineralogy; Micropalaeontology
Date and Place of Birth: 13 November 1906; Kundapur, Karnataka
Parents: Sunderrao Kilpady and Sitabai
Spouse and Children: Kamalabai; one s
Address: Emmaus Village Hostel, Suite No. 20, 85, Bakers Lane, Kemps Creek, NSW 2178, Australia
Tel. (+61-2) 9834 5111 (R)
email: emmausrv@pnc.com.au

Education: Univ. of Mysore: MSc 31.

Career: Nagpur Univ., Dept of Geology: Prof. and Head.

Scientific Work: Carried out optical, differential, thermal and X-ray powder-diffraction studies of manganese minerals in particular. Micropalaeontological studies of cretaceous, palaeocene and eocene algae and charophyta substantially contributed to the fixing of the age of the Deccan traps and identification of certain horizons in the early tertiary formations of the Salt Range.

Memberships: Fellow: INSA 54; Geological Soc. of London.

King, Charles A*

Elected: 1934
Last Address: Engineering College, Banaras Hindu Univ., Varanasi, India
***Deceased:** 19 May 1936

Education: ARCSc, MIME, MISE.

Career: Engg College, BHU: Principal.

Memberships: Fellow: INSA 35, NASI.

Kini, Mangalore Gopal*

Elected: 1941
Specialization: Orthopaedic Surgery; Anaesthetic Technique
Date and Place of Birth: 5 August 1893; Mangalore, Karnataka
Parents: M Panduranga Kini and Rukmini
Spouse and Children: Ratna Bai; three *s*, one *d*
Last Address: 173, Connaught Mansions, Mid Colaba, Bombay 400 005, India
***Deceased:** 22 August 1952

Education: Madras Univ.: MBBS; Liverpool: MCh.

Career: Indian Medical Service 19; Govt General Hospital, Madras: Chloroformist; Madras Medical Service; Andhra Univ. and Madras Univ.: Prof. (Operative Surgery and Orthopaedics); Stanley Hospital, Madras: Superintendent.

Scientific Work: Made significant contributions to the development of orthopaedic surgery in India. Involved in formulation of the curriculum of training in surgery both for the undergraduate and post-graduate training of medical students. Major research contributions were in the field of tuberculosis of the spine (Pot's disease). Reported on the chemotherapy and other measures in the treatment of this common complication of tuberculosis. Worked on various deformities particularly those caused by poliomyelitis and also the congenital deformities like the talipes. Worked extensively on the deformities left by the faulty bone setting by unqualified bone-setters.

Memberships: Fellow: INSA 44; Royal Soc. of Edinburgh; American College of Surgeons.

Awards & Distinctions: Military Cross for Distinguished Services in Afghan War 19.

Kishore, Kaushal*

Elected: 1991
Specialization: Physical Chemistry of Macromolecules; Thermodynamics
Date and Place of Birth: 31 December 1942; Gonda, Uttar Pradesh
Parents: H P Srivastava and Chandrawati
Spouse and Children: Indra Rani; one *s*, one *d*
Last Address: Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 2 March 1999

Education: Lucknow Univ.: BSc 62, MSc 64; Gorakhpur Univ.: PhD 67; Univ. of Leeds: Postdoc Res. 72.

Career: Gorakhpur Univ.: Lecturer 67–74; IISc, Bangalore: Asst Prof. 74–79, Assoc. Prof. 79–84, Prof. 84–99.

Scientific Work: Studied the physiochemical behaviour of widely contrasting polymers. Contributed towards the prediction of novel exothermic degradation of polyperoxides from thermodynamics resulting in the original discovery of a new phenomenon of autopyrolysis in polymers. Interesting correlations have been made between the structure and macroscopic behaviour like flammability and thermal stability. For understanding their plasticizing ability, thermodynamic studies on the flow and vaporization phenomena of long chain esters (mol. wt. 300–1000) have been carried out. The effect of molecular weight, branching and polarity has been examined for linear, Y-branched and X-branched esters. Segmental motion, which ensues after a molecular weight of about 600, has been explained from the blob concept.

Memberships: Member: IUPAC Commission on Macromolecular Nomenclature, Indian Thermal Analysis Soc. and High Energy Materials Soc. • Fellow: NASI.

Awards & Distinctions: S S Bhatnagar Prize 88 • Indian Thermal Analysis Award 91.

Kochupillai, Narayana Panicker

Elected: 1990
Position: Dir, SRM Medical College, Kattankolathur
Specialisation: Internal Medicine, Clinical Endocrinology Metabolism, Diabetes and Biotechnology
Date and Place of Birth: 10 February 1939; Quilon, Kerala
Parents: M Narayana Panicker
Spouse and Children: Vinod; two *d*
Address: Endocrinology, Metabolism and Diabetes, SRM Medical College,
SRM University, Kattankolathur 602 203, India
Tel. (044) 2745 5705 (O), (044) 2745 5704 (R) Mobile: 98183 09294
email: kochupillai@gmail.com

Education: Univ. of Kerala: BSc 58; AIIMS, New Delhi: MBBS 62, MD 66.

Career: AIIMS, New Delhi, Dept of Endocrinology & Metabolism: Lecturer in Medicine 70–77, Asst Prof. 77–85, Assoc. Prof. 85–89, Prof. and Head 89–2002; MS Ramaiah Medical College, Bangalore: Res. Dir 2007–08; SRM Medical College, Kattankolathur: Dir 2008–.

Scientific Work: Investigated thyroid disorders as well as causes of preventable mental retardation in India. Developed original and cost-effective immunoassay technology for taking up large-scale studies on disorders of endocrinology and metabolism, as seen in India. Studied nutritional iodine deficiency and its consequences in India, which led to the adoption of a National Policy of Universal Salt Iodation in India.

Memberships: Fellow: NAMS; INSA 91.

Awards & Distinctions: Shakuntala Amirchand Prize 80 • Medical Council of India Hari Om Ashram Alembic Award 83 • ICMR Basanti Devi Amirchand Prize 86.

Kondal Rao, Nidamarty*

Elected: 1975
Specialization: Metallurgy; Materials Science
Date and Place of Birth: 15 July 1924; Nidamarru, Andhra Pradesh
Parents: N Mangayya and Venkataratnam
Spouse and Children: Sree Mahalakshmi; three s
Last Address: 1–57, Snehapuri, Nacharam, Hyderabad 501 507, India
***Deceased:** 22 October 2008

Education: BHU, Varanasi: BSc 48; Aachen Univ., West Germany: PhD 55.

Career: Devidayal Metal Industries, Bombay: Metallurgist 48–49; Indian Smelting & Refining Co., Bombay: Metallurgist 49–53; Hindustan Motor Ltd, Calcutta: Metallurgist 55–56; BARC, Bombay, Atomic Fuels Dn: Head 56–80; Nuclear Fuel Complex, Dept of Atomic Energy, Govt of India: Chief Executive 72–84.

Scientific Work: Developed and produced aluminium clad uranium metal fuel elements from the very beginning for CIRUS & ZERLINHA reactors. Developed and produced zircaloy clad uranium oxide fuel for power reactors at Tarapore, Rajasthan, Madras, Narora. Set up the industrial complex NFC for production of nuclear fuel and for components of zircaloy extraction of metal from sand, alloying and subsequent fabrication. NFC produced fuel has given satisfactory service. Set up full scale production plants for seamless stainless steel tubes and seamless steel tubes for ball bearings and other applications. Developed various materials for electronics industry. Produced large size sterling silver tubes for industrial use.

Memberships: Fellow: Maharashtra Acad. of Sci.

Awards & Distinctions: National Metallurgical Day Award 68 • Distinguished Alumnus Award of BHU 73.

Kosambi, Damodar Dharmanand*

Elected: 1935
Specialization: Pure and Applied Mathematics; Theoretical and Nuclear Physics
Date and Place of Birth: 31 July 1907; Kosben, Goa
Parents: Dharmanand Kosambi
Last Address: Banaras Hindu University, Varanasi, India
***Deceased:** 29 June 1966

Education: Harvard Univ.: BSc 29, PhD.

Career: BHU: Prof. 29–37; Aligarh Univ.: Vis. Prof. 31–32; Ferguson College, Poona: Prof. 33; TIFR, Mumbai: Prof. 47–62; CSIR Emer. Sci. 65; MACS, Pune: Prof. 64–65.

Scientific Work: Used statistical methods to decide the dates of coins from their weight. This led to the foundation of a new branch of science viz., numismatics. Work on the seasonal death rate and the subsequent suggestion to concentrate on anti-typhoid work about three weeks before the onset of monsoon resulted in the saving of considerable number of lives. Statistical methods originally suggested to engineers for constructing dams have later been adopted as the basis for location and size of dams. Interest first shifted to theoretical and nuclear physics and then to Indian history and culture for pioneering work in archaeology and ethnography.

Memberships: Fellow: INSA 46.

Awards & Distinctions: Ramanujan Memorial Prize 34 • Bhabha Prize 74.

Koteswaram, Pancheti*

Elected: 1974
Specialisation: Atmospheric Physics Meteorology and Hydrology
Date and Place of Birth: 25 March 1915; Nellore, Andhra Pradesh
Parents: P Subharayulu Devara and P Venkatasubbamma
Spouse and Children: Sarojini; four *d*
Last Address: Varsha, 8-1-11, University Road, Waltair Uplands, Visakhapatnam 530 003, India
***Deceased:** 11 January 1997

Education: Univ. of Madras: BSc Hons 34, DSc 39; Andhra Univ.: DSc h c 72.

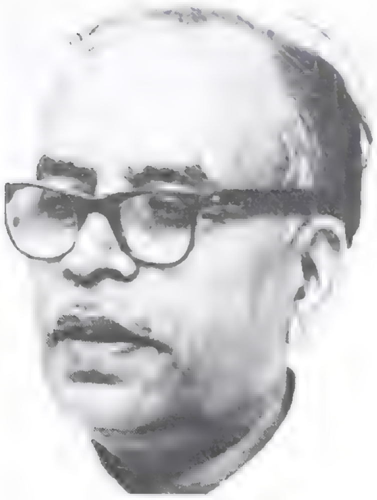
Career: Andhra Christian Coll., Guntur: Demonstrator 34–36; Andhra Univ., Waltair: Lecturer 36–38; Hindu College, Machalipatnam: 39; Pachaiyappa Coll., Madras: 40; India Meteorological Dept, Govt of India: Forecaster, Meteorologist at Delhi Airport, Dir of Aviation Services, Dy Dir General of Observatories 40–69, Dir-General 69–75. Univ. of Chicago, Hawaii: Prof.; Natl Hurricane Res. Lab., USA: Vis. Sci.; Natl Centre for Atmospheric Res., USA: Prof.; Teheran Univ., Iran: Hon. Prof.

Scientific Work: Detected hydrogen bond formation in associated liquids with the aid of Raman effect. Identified westerly jet stream over North India and the tropical easterly jet stream over South Asia and North Africa. Postulated the formation of a meridional monsoon cell in the Asian summer monsoon and a break monsoon cell in the break monsoon. Identified the cold tops of Atlantic hurricanes. Found long period trends in the rainfall over the Indian west coast. Analysed the structures of tropical cyclones, monsoon depressions and north-western thunderstorms over India.

Memberships: Fellow: INSA 74; Andhra Pradesh Acad. of Sci. 75 • President: Indian Meteorological Soc. Assn of Hydrologists of India.

Awards & Distinctions: Padma Bhushan 75.

Kothari, Daulat Singh*



Elected: 1975
Specialization: Astrophysics; Statistical Mechanics; Philosophy
Date and Place of Birth: 6 July 1906; Udaipur, Rajasthan
Parents: Feteh Lalji and Laharbai
Spouse and Children: Sujan Kanwar; three *s*
Last Address: c/o Prof. L S Kothari, 71, Vaishali, Pitampura, Delhi 110 034, India
***Deceased:** 4 February 1993

Education: Univ. of Allahabad: MSc; Cambridge Univ.: PhD 33.

Career: Univ. of Delhi: Reader and Prof. 34–73; First Sci. Adviser to Ministry of Defence 48–61; Edn Commission: Chmn 64–66; UGC: Chmn 61–73; Natl Commission on Sci. and Technical Terminology, Govt of India: Chmn; JNU, New Delhi: Chancellor 81–93, Emeritus Prof. of Phys.

Scientific Work: Worked in quantum statistical mechanics and its application to degenerate stars and planets. In particular, calculated the effects of pressure ionization in cold compact objects. Showed that bodies having masses greater than that of Jupiter would be unstable against collapse. Applied quantum statistical mechanics to a wide class of systems. Applied Ramanujan's famous theory of partitions to high polymers. Also studied the behaviour of metals under intense pressure of explosive loads. With M N Saha, also studied the magnetic monopole proposed by P A M Dirac.

Memberships: Fellow: INSA 36 • For. Mem: USSR Acad. Sci. 73.

Awards & Distinctions: Padma Bhushan 62 • S S Bhatnagar Medal 66 • Padma Vibhushan 73 • President: INSA 73–74 • Meghnad Saha Medal 78 • UNESCO Award.

Krishna Kumar, Kanikicharla

Elected: 2008
Position: Sci. & Program Manager, IITM, Pune
Specialization: Monsoon Dynamics; Predictability and Prediction; Climate Change and Impacts; Climate Applications
Date and Place of Birth: 6 June 1958; Eluru, Andhra Pradesh
Parents: Nageswara Rao and Rama Ratnam
Spouse and Children: Kamala Devi; two *d* (Sai Sudha, Sindhu)
Address: Indian Institute of Tropical Meteorology, Homi Bhabha Road, Pashan, Pune 411 008, India
Tel. (020) 2589 3600 (O), (020) 2586 2937 (R), Mobile: 98500 85018
email: krishna@tropmet.res.in, krishnakumar.kanikicharla@gmail.com

Education: Andhra Univ., Visakhapatnam: BSc 78, MSc 80; Univ. of Pune: PhD 97; Columbia Univ, New York: Postdoc.

Career: Indian Inst. of Tropical Meteorology: Sci. Asst 82–92, Sci. 92–, Prog. Mgr 2006–.

Scientific Work: Currently leading a programme on 'climate variability and climate change' at Indian Institute of Tropical Meteorology, Pune. Has over 25 years of research experience in areas of monsoon dynamics, prediction, predictability, climate applications and climate change. Work on linking Indian monsoon to a well-known oceanic phenomenon called the El Nino Southern Oscillation (ENSO) have advanced our understanding of monsoon interannual variability and prediction. Of late has been mainly focussing on issues concerning global warming and its impact on India's monsoonal climate. While understanding core monsoon issues has been a passion, strives to take the science to the society by way of active involvement in several application oriented national and multi-lateral projects.

Important Publications: **(1)** Unravelling the mystery of Indian monsoon failure during El Nino (2006) *Science* **314**, 195–199. **(2)** On the weakening relationship between the Indian monsoon and ENSO (1999) *Science* **284**, 2156–2159. **(3)** Advancing dynamical prediction of Indian monsoon rainfall (2005) *Geophys. Res. Lett.* **32**, L08704. **(4)** Climate impacts on Indian agriculture (2004) *Intl. J. Climatol.* **24**, 1375–1393. **(5)** Epochal changes in Indian monsoon-ENSO precursors (1999) *Geophys. Res. Lett*. **26**, 1, 75–78.

Memberships: Life Member: Indian Meteorological Soc. • Assoc. Member: The Abdul Salam ICTP, Trieste 2003–08.

Awards & Distinctions: Norbert Gerbier-Mumm International Award of the World Meteorological Organization, Geneva 2009 • First Excellence in Atmospheric Sciences Award Ministry of Earth Sciences, New Delhi 2007 • Letter of Appreciation from Hon. Prime Minister of India for the contributions to the IPCC 2007 • IITM Silver Jubilee Award 2002 • SAARC Young Scientist Award 92.

Krishna Murti, Coimbatore Ramadorai*

Elected: 1974
Specialization: Biochemistry
Date and Place of Birth: 3 March 1923; Trichur, Kerala
Parents: C K Ramadorai and Meenakshi
Spouse and Children: Brinda; one *s*, two *d*
Last Address: Susmita, 18A, III Main Road, Kasthurbanagar, Adyar, Madras 600 020, India
***Deceased:** 30 June 1990

Education: Waltair Univ.: BSc Hons; Univ. of Bombay: PhD 48.

Career: Integrated Environmental Programme on Heavy Metals, Govt of India, Dept of Environment Principal Coordinator; CDRI, Lucknow: Sr Sci., Dy Dir 50; Industrial Toxicology Res. Centre, Lucknow: Dir 75–.

Scientific Work: Elucidated the molecular mechanism of encystation and excystation of parasitic amoebae. Demonstrated finding of bilirubin to collagen and the matrix bound bilirubin being photodegraded to non-toxic products, and the loss of catecholamine receptors in mammalian erythrocytes during maturation. Concerned with pollution by heavy metals and non-biodegradable organic chemicals. Synthesized toxicological information on industrial and agrochemicals and evolved multidisciplinary approaches to their safety evaluation. Studies on Bhopal gas leakage disaster envisaged elucidation of mechanisms of the implicated toxicants suggested remedies for their long-term effects. Also designed and coordinated a study on the current practices of industrial waste disposal in India.

Memberships: Member: Soc. of Biological Chemists • Fellow: INSA 71; NASI.

Awards & Distinctions: ICMR Basanti Devi Amirchand Award 73 • INSA Sunder Lal Hora Medal 81 • Pitamber Pant National Environmental Fellowship 83.

Krishna Murty, Achyutuni Venkata

Elected: 1993
Specialization: Aerospace Engineering; Structural Mechanics; Composites; Smart Structures
Date and Place of Birth: 10 October 1938; Santharavur, Andhra Pradesh
Parents: A Satrullu and Bhudevamma
Spouse and Children: Bala; two *s*, one *d*
Address: No. 8, 5th Main, II Cross, NTI Layout, RMV II Stage, Nagashettyhalli, Bangalore 560 094, India
Tel. (080) 2341 0116 (R)
email: avkrishnamurty@yahoo.co.in

Education: Andhra Univ.: BE 60; IISc, Bangalore: ME 62, PhD 66.

Career: IISc, Bangalore, Dept of Aerospace Engg: Sr Res. Fellow 62–66, Lecturer 66–69, Asst Prof. 69–73, Assoc. Prof. 73–78, Prof. 78–2001, Chmn 89–94, Dean 96–98, KSIIDC Chair 99–2001.

Scientific Work: Developed a general theory of thin-walled beams of arbitrary cross-section for dynamic analysis of aircraft wing-type structures. Higher-order theories of beams, plates and shells, have improved capability for predicting the frequency spectrum. Developed higher order theories for the analysis of laminated composite panels, with provision to obtain interlaminar stresses. Introduced the concept of singularity element in finite element analysis for estimating stress intensity factors for fracture studies. Transition element concept provides a convenient method to study local effects, making use of appropriate field equations in different regions of the stucture.

Memberships: Fellow: Institute of Engineers; Aeronautical Soc. of India.

Krishna Murty, Kuppachi*

Elected: 1981
Specialization: Internal Medicine; Cardiology; Haematology
Date and Place of Birth: 13 November 1926; Pullivendra, Andhra Pradesh
Parents: Subbaiah and Venkatalaxmi
Spouse and Children: Anasuya Devi; one *s*, two *d*
Last Address: Plot No. 80, 7-17-15, Kirlampudi Layout, Visakhapatnam P. O., 530 017, India
***Deceased:** 10 May 2001

Education: Andhra Univ.: MBBS 50, MD 55.

Career: Andhra Medical College, Visakhapatnam: Prof. 59–65, 70–75, 78–83, Emeritus Prof. 83–91; JIPMER, Pondicherry: Prof. 65–70; Gandhi Medical College, Hyderabad: Prof. 75–78; Osmania Medical College: Prof. 79–80, Principal 80–83; Hon. Physician to President of India 78.

Scientific Work: Developed a special technique for registering the pressure in splanchnic vessels. Engaged in the pursuit of cardiology and developed cardio-thoracic surgery unit. Studied the outbreak of dengue like illness at Visakhapatnam; plasma proteins in health and disease with particular reference to transudates and exudates; diuretic therapy in congestive heart failure; pulmonary function in tropical eosinophilia; long term study of acute myocardial infarction at Visakhapatnam; ledermycin in respiratory infection; immunoglobulin pattern in bronchial asthma effect of chromolyum glycolate; immunoglobulin pattern in diabetes mellitus – role of placental extract in diabetic polyneuropathy.

Memberships: FAMS 50.

Awards & Distinctions: Anderson Memorial Medal 47, 50 • Kirlampudi Gold Medal 50 • S Rangachari Gold Medal 51 • Vulakki Memorial Gold Medal 78 • Gurumurty Memorial Award.

Krishna Rao, Gummadithala Sri*

Elected: 1987
Specialization: Synthetic Organic Chemistry; Terpenoids
Date and Place of Birth: 26 October 1926; Rajahmundry, Andhra Pradesh
Parents: G Gopal Rao and Subbayamma
Spouse and Children: Thimmabayamma; one *s*, two *d*
Address: Gowthami, No. 56/3, 17th Cross, Malleswaram, Bangalore 560 055, India
***Deceased:** 16 December 2008

Education: Univ. of Andhra: BSc Hons 47, MSc 48; IISc, Bangalore: AIISc, DIISc 51; Univ. of Bombay: PhD 56.

Career: IARI: Sci. Offr 56–57; Natl Res. Council, Canada: Postdoc Fellow 58–60; IISc, Bangalore: Lecturer 60–67, Asst Prof. 67–70, Assoc. Prof. 70–73, Prof. 73–87, Chmn of Organic Chem. 74–77, Dean of Sc Faculty 77–78, CSIR Emeritus Sci. 87–92.

Scientific Work: Has made extensive contributions in the area of natural product chemistry with main focus on the chemistry of isoprenoids. Efforts have led to several new and useful syntheses of oxygenated, aromatic hemi-mono and sesqui-terpenoids, many of which possess promising biological activity. Worked on applications of Vielsmeir–Haack reaction.

Memberships: Fellow: INSA 88.

Awards & Distinctions: IISc Guha Res. Medal 56.

Krishna Rao, Pamadi Raghavendrarao*

Elected: 1940
Specialization: Meteorology
Date and Place of Birth: 25 July 1906; Mulbagal, Karnataka
Last Address: 70, Gayatri Devi Park Extension, Bangalore 560 003, India
***Deceased:** 7 November 1985

Education: Univ. of Mysore: BSc.

Career: India Meteorological Service: Asst Meteorologist 27–42, Meteorologist 42–47, Dir N W Region 47–49, Dir Military Services Dn 47–49, Regional Meteor. Centre Madras: Dir 49–53, Dy Dir General of Observatories 53–66.

Scientific Work: Interest in planning and execution of many development schemes of the meteorological department. Instituted the northern hemisphere exchange system with Delhi–Tokyo and Delhi–Moscow radio teletype circuits, planned and executed UN Special Fund Project for the Institute of Tropical Meteorology, Poona and the International Meteorological Centre, Bombay and initiated work on rocket and satellite meteorology in the department.

Memberships: Member: WMO Executive Committee • Chmn: Standing Advisory Board for Astronomy, Advisory Committee for Rain and Cloud Physics Research; CSIR Geophysics Research Board; India Meteorological Dept Res. Committee • President: Indian Meteorological Soc. • Fellow: London Royal Meteorological Soc., World Acad. of Arts and Science.

Krishna Swamy, Kittur Subbarao

Elected: 1989
Specialisation: Astrophysics
Date and Place of Birth: 23 April 1938; Bangalore, Karnataka
Parents: K Subba Rao and Kalyanamma
Spouse and Children: Shyamala; one *s*, one *d*
Address: 204, Sigma Tower, Plot 32, Gorai Link Road, Borivali (W), Mumbai 400 091
Tel. (022) 2867 3894 (R)
email: swamy@tifr.res.in

Education: Univ. of Delhi: BSc Hons 57, MSc 59; Univ. of California, Berkeley: PhD 65.

Career: California Inst. of Technol., California: Res. Assoc. 65; Univ. of Chicago, Yerkes Observatory: Res. Assoc. 65–66; Goddard Space Flight Centre, USA: NRC-NAS-NASA Assoc. 66–69; Rice Univ., USA: Sr Res. Assoc. 69–70, 73–75; TIFR, Bombay: Fellow 70–73, Reader 73–81, Assoc. Prof. 81–86, Prof. 86–92, Sr Prof. 92–2000; Univ. College, Cardiff, UK: SERC Sr Vis. Fellow 80–81; Ames Res. Centre, USA: NRC-NAS-NASA Sr Res. Assoc. 86–88.

Scientific Work: Proposed a basic physical model for the observed C_2 Swan bands in comets. This problem defied a satisfactory explanation for more than a quarter century. Demonstrated a new physical mechanism operating in the case of the C_2 molecule. Involved in the first detection of millimeter radiation from Comet Kohoutek and the detection of CO molecule around a hot star. Discovered the infrared feature at 20 microns for the first time and strengthened the interstellar silicate dust hypothesis. Another silicate feature at 30 microns was proposed to exist and was also detected. The observed strong infrared continuum from planetary nebula as due to thermal emission was first proposed and also explained quantitatively the observations based on this model. The prompt emission lines of OH in the ultraviolet region was discovered in comet Hykutake. Taken active part in the popularization of astronomy, astrophysics and space sciences through invited talks, TV, radio etc. Author of several books; Astrophysics: A modern perspective (ed., physics of comets, dust in the universe, understanding cosmic panorama).

Important Publications: **(1)** Thermal emission by particles in NGC 7027 (1968) *Astrophys. J.* **151**, L61. **(2)** Narrow band infrared photometry of α ori (1970) *Nature*, **227**, 1333. **(3)** Statistical equilibrium in cometary C I (1997) *Astrophys. J.* **216**, 158. **(4)** Molecules in celestial objects I: circumstellar CO in a cephei (1980) *Mon. Not. R. Astron. Soc.* **192**, 417. **(5)** Prompt UV emission by OH in comet hyakutake (2007) *Bulletin Am. Astronom. Soc.* **39**, 507.

Memberships: Member: International Astronomical Union • Life Member: Astronomical Soc. of Pacific (USA) Astronomical Soc. of India

Awards & Distinctions: Hari Om Ashram Vikram Sarabhai Award 79.

Krishna, Kolluru Sree

Elected: 2002
Position: Sci. F, NIO, Dona Paula
Specialization: Structure and Tectonics of the Continental Margins of India; Lithospheric Deformation of the Central Indian Ocean; Structure and Evolution of the Volcanic Ridges of the Indian Ocean
Date and Place of Birth: 15 October 1958; Chinaogiorala, Andhra Pradesh
Parents: Nageswara Rao and Karuna
Spouse and Children: Swathi Kumari; two *s*
Address: Geological Oceanography Division, National Institute of Oceanography, Dona Paula 403 004, India
Tel. (0832) 245 0384 (O), (0832) 245 2438 (R), Mobile: 97654 944935
email: krishna@nio.org

Education: Andhra Univ.: BSc 79, MSc (Tech) 82, PhD 96.

Career: Geophysical Service Inc. Texas, USA: Seismologist 83–84; Natl Inst. of Oceanography: Sci. 84–.

Scientific Work: Pioneer in the field of marine geophysics, particularly in understanding the structure and tectonics of the Indian Ocean. Tectonic models postulated the breakup of eastern Gondwanaland, origin of aseismic ridges, deformation of the Indian Ocean lithosphere and nature of the crust in the Laxmi basin and have deepened our understanding on evolution of the continental margins and adjoining basins. The research findings on deformation of the central Indian Ocean lithosphere have superseded the earlier concepts of deformation occurring at miocene age in certain area. The new hypothesis on multiphase folding, early fault activity and association of seismicity with the younger phase of folding event will now allow improvements in plate kinematic and deformation models. Researchers are widely using these new concepts for understanding the folding events and their link to the reverse fault activity. The 85°E ridge in the Bay of Bengal is associated with low gravity anomalies, making it an exception from the fundamental rule. Explained the character of low gravity with the presence of metasediments and flexure of the lithosphere beneath the ridge. The switch-over in gravity signatures of the 85°E ridge from negative to positive towards south is attributed to termination of pre-collision continental sedimentary rocks in the Bay of Bengal. Another major contribution is determination of continental nature of the crust in the Laxmi basin, Arabian Sea. The results provide important scientific inputs in delineation of the legal continental shelf (LCS) limit on western margin of India, especially for extension of the exclusive economic zone.

Important Publications: **(1)** Evidence for multiphase folding of the central Indian Ocean lithosphere (2001) *Geology* **29**, 715–718. **(2)** Crustal structure and tectonics of the Ninetyeast Ridge from seismic and gravity studies (2001) *Tectonics* **20**, 416–433. **(3)** Nature of the crust in the Laxmi Basin (14°–20°N), western continental margin of India (2006) *Tectonics* **25**, TC1006, Doi:10 1029/ 2004TC001747. **(4)** Early (pre-8 Ma) fault activity and temporal strain accumulation in the central Indian Ocean (2009) *Geology* **37**, 227–230. **(5)** Geoid and gravity anomaly data of conjugate regions of Bay of Bengal and Enderby basin – new constraints on breakup and early spreading history between India and Antarctica (2009) *J. Geophys. Res.* **114**, B03102, doi:10.1029/2008JB005808.

Memberships: American Geophysical Union, Asia Oceania Geosciences Soc.; Indian Geophysical Union: Geological Soc. of India; Assn of Exploration Geophysicists; A P Acad. of Sci.

Awards & Distinctions: M S Krishnan Gold Medal 96 • S S Bhatnagar Prize 2001.

Krishna, Maddaly Gopala*

Elected: 1974
Specialization: Chemical Engineering; Petroleum Refining; Catalysis; Distillation; Tribology
Date and Place of Birth: 18 July 1922; Rajahmundry, Andhra Pradesh
Last Address: Fuel Research Institute, Dhanbad 82 8108, India
***Deceased:** 5 June 1978

Education: Andhra Univ.: BSc Hons 42, MSc 44; Univ. of Leeds, UK: PhD 48.

Career: CSIR, New Delhi: Jr Sci. Asst of Chemical Labs 44–45; RRL, Hyderabad: Sci. Offr 50–55, Asst Dir 55–62, Dy Dir 62–64; Indian Inst. of Petroleum, Dehra Dun: Dir 64–78; Fuel Res. Inst., Dhanbad: Dir; Indian Oil Corporation, Ministry of Petroleum & Chemicals, Nagpal Ambadi Petrochemicals Refining, Hyderabad Chemicals & Fertilizers: Consultant.

Scientific Work: Outstanding contributions in the areas of fuels, coal utilization, petroleum refining, fractionation, upgrading and petrochemicals, hydrogen processing (hydrodesulphurization hydrogenation) catalytic reforming, process developmental for transformer oil, white oil and specialities. Studied market demand for petroleum and petroleum products and their applications. Process studies on production of domestic costs by low temperature carbonization of coal. Processing of low temperature tar, separation of alkyl phenols, hydrogenation of tars, distillation of mixture of crude oil, etc.

Krishna, Padmanabhan

Elected: 1979
Position: Secretary, KFI Rajghat Education Centre, Varanasi
Specialization: Crystallography; Imperfection in solids; Education, Science and Society
Date and Place of Birth: 13 January 1938; Chennai
Parents: Nilakanta Padmanabhan and Narayan Rao Maitreyi
Spouse and Children: Minakshi; four *d* (Anuradha, Anjali, Sujata, Sumita)
Address: Krishnamurti Foundation India, Rajghat Fort, Varanasi 221 001, India
Tel. (0542) 244 1536 (O), (0542) 244 1356 (R), Mobile: 94152 23667
email: pkrishna@pkrishna.org, pkrishna80@gmail.com

Education: Agra Univ.: BSc 57; Delhi Univ.: MSc 59; BHU: PhD 62.

Career: BHU, Varanasi, Dept of Phys.: Res. Fellow 59–62, Lecturer 62–66, Reader 66–72, Prof. 72–86, Head 78–80; Univ. of Bristol, Sci. Res. Council of UK: Sr Vis. Fellow 80–81; Rajghat Edn Centre, Krishnamurti Foundation India, Varanasi: Rector 86–2003, INSA Sr Sci. 2003–07; IBM Watson Res. Centre, New York: Vis. Sci. 75; Max-Planck Inst. (FKF), Stuttgart: 79, 82, 84; IUCr Commission for Crystallographic Teaching: Chmn 81–84.

Scientific Work: Investigated the phenomenon of random, non-random and periodic faulting in close-packed structures using X-ray diffraction methods. Determined the crystal structure of several long-period polytypes of SiC, proposed a faulted matrix model for the growth of polytype structures, investigated the origin of giant screw dislocations, discovered 2H-3C and 2H-6H phase-transformations in SiC, and showed that these occur through the non-random insertion of stacking faults. Developed the theory of X-ray scattering from non-random distributions of faults in close-packed structures and compared the calculated diffuse intensities with those recorded experimentally to elucidate the mechanism of phase transformations in SiC and ZnS.

Important Publications: **(1)** *Polymorphism and polytypism in crystals* (1966) Wiley, NY. **(2)** *Random, non-random and periodic faulting in crystals* (1994) Gordon and Breach, Reading, UK. **(3)** *Right living in modern society* (1999) Theosophical Publishing House, Adyar, Chennai. **(4)** *Education science and spirituality (*2000) TPH, Adyar, Chennai. **(5)** Edited *recent advances in X-ray characterization of materials* (1987, 1989) Vol 1. and 2 Pergamon, Oxford, UK.

Memberships: Fellow: INSA 82.

Krishna, Rajamani

Elected: 1989
Position: Prof., Univ. of Amsterdam
Specialization: Chemical Reaction Engineering
Date and Place of Birth: 13 September 1946; Bombay, India
Parents: Doraiswamy Rajamani and Padma
Address: Van't Hoff Institute for Molecular Science, University of Amsterdam,
Nieuwe Achtergracht 166, 1018 WV Amsterdam, Netherlands
Tel. (+31-20)525 7007 (O), (+31-20)627 0990 (R)
email: r.krishna@uva.nl; URL: http://www.science.uva.nl/research/cr/pdf/

Education: Univ. of Bombay: BChemEngg 68; Univ. of Salford, England: MSc 70; Univ. of Manchester: PhD 75.

Career: Univ. of Manchester, Inst. of Sci. and Technol.: Lecturer 70–75; Shell Intl Chem. Co., The Hague: Engineer 76–77; Royal Dutch Shell Lab., Amsterdam: Res. Engineer 77–80, Sr Res. Engineer 80–82, Adviser in Chemical Engg 84; Shell Intl Petroleum Co., The Hague: Sr Economist 82–84; Indian Inst. of Petroleum, Dehra Dun: Head, Refining Dn & Training Dn, Dy Dir 84–85, Dir 86–89. Prof., Univ. of Amsterdam, 89–.

Scientific Work: Has used Monte Carlo and molecular dynamics molecular simulation techniques to obtain insights as to how guest molecules adsorb and diffuse inside nonporous materials. Contributed to the development of the Maxwell–Stefan approach to the description of diffusion of multicomponent mixtures.

Important Publications: **(1)** *Multicomponent mass transfer* (1993) John Wiley, New York. **(2)** Modelling reactive distillation (2000) *Chem. Eng. Sci.* **55**, 5183–5229. **(3)** Insights into diffusion of gases in zeolites gained from molecular dynamics simulations (2008) *Microporous and mesoporous materials* **109**, 91–108. **(4)** Onsager coefficients for binary mixture diffusion in nanopores (2008) *Chem. Eng. Science* **63**, 3120–3140. **(5)** Unified Maxwell–Stefan description of binary mixture diffusion in micro- and meso-porous materials (2009) *Chem. Eng. Sci.* **64**, 3159–3178.

Memberships: Fellow: Institution of Chemical Engineers, UK; INAE • Member: Indian Inst. of Chemical Engineers.

Awards & Distinctions: FICCI Award 86 • Univ. Dept Chemical Technol. Diamond Award 1994 • ICT, Mumbai Platinum Award 2009.

Krishna, Sri*

Elected: 1934
Specialization: Synthetic Organic Chemistry; Chemistry of Forest Products
Date and Place of Birth: 6 July 1896; Lahore, Pakistan
Parents: Madan Mohan Kapur and Sunderi Devi
Spouse and Children: Olga Hallerman; one *s*
Last Address: Forest Research Institute & College, Dehra Dun, India
***Deceased:** 3 October 1984

Education: Punjab Univ., Lahore: BSc 17, MSc 19; Univ. of London: PhD 21.

Career: Punjab Univ., Lahore: Prof. of Organic Chem. 25–28; Forest Res Inst., Dehradun: Biochemist 28–50, Dir of Res. and Vice-President 47–50; Indian High Commission, London: Sci. Adviser 50–52, Sci. Liaison Offr 53–58; CSIR, New Delhi: Dy Dir General 52.

Scientific Work: Known for synthesis of sulphur compounds in phthalein group, survey of raw materials in India for drugs like ephedrin and santonine; development of a sizing material for cotton and jute from tamarind seeds.

Memberships: Fellow: INSA 35; London Royal Inst. of Chemistry; London Chemical Soc. • President: Indian Sci. Congress, Chem. Sec.

Krishnakumar, Erumathadathil

Elected: 2008
Position: Prof., TIFR, Mumbai
Specialization: Atomic Collision Processes; Molecular Dynamics; Electron-Controlled Chemistry
Date and Place of Birth: 28 November 1952; Pallippuram, Kerala
Parents: Appu Menon and Janaki Amma
Spouse and Children: Shoba; one *s*, one *d*
Address: Department of Nuclear & Atomic Physics, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2502 (O), (022) 2280 4998 (R), Mobile: 99872 60951
email: ekkumar@tifr.res.in

Education: Calicut Univ.: BSc 73, MSc 75; Gujarat Univ.: PhD 81.

Career: PRL, Ahmedabad: Res. Scholar 75–81, Vis. Sci. 81–82; Space Applications Centre: Sci. D 82–85; Caltech, USA: NRC-NASA Resident Res. Assoc. Member of Tech. Staff 87–88, Reader 93–97, Assoc. Prof. 97–02; Prof. 2002–; TIFR, Mumbai: Vis. Fellow 88–90, Fellow 90–93.

Scientific Work: Studied various processes in atomic and molecular collisions using wide variety of experiments. These include probing the role of autoionizing resonances in photoionization of molecules using photoelectron spectroscopy, electron atom/molecule scattering leading to excitation, ionization and attachment, ion atom/molecule collisions, beam foil spectroscopy of highly charged ions, and excited state selected: collisions. Apart from providing basic understanding of various collision phenomena like the role of electron correlations in ionization, accurate data on lifetimes of excited states of molecules and highly charged ions of astrophysical importance and absolute cross-sections for the formation of positive and negative ions by electron collisions on molecules in their ground state as well as excited states important to a variety of practical applications and basic sciences were obtained. The recent efforts have been to study the dynamics of the formation and decay of excited states of molecular negative ions using ion momentum imaging and to investigate electron controlled chemistry. Expertise included VUV spectroscopy, electron and ion spectroscopy including momentum imaging and mass spectrometry.

Important Publications: **(1)** Dissociative ionisation of H_2 by fast fully stripped ions (1994) *J. Phys.* **B27**, L777. **(2)** Cross-sections for dissociative attachment of excited and ground electronic states of SO_2, (1997) *Phys. Rev.* **A56**, 1945. **(3)** Velocity slice imaging for dissociative electron attachment (2005) *Rev. Sci. Instrum.* **75**, 053107. **(4)** Functional group dependent site specific fragmentation of molecules by low energy electrons (2005) *Phys. Rev. Lett.* **95**, 143202. **(5)** Controlling molecular fragmentation using low energy electrons (2007) *J. Phys. Conf. Ser.* **88**, 012073.

Krishnamachari, Samavedam Laxmi Narasimha Gopala

Elected: 1975
Specialization: Atomic and Molecular Spectroscopy; Lasers; Spectrochemical Analysis; Solar Energy Utilization
Date and Place of Birth: 20 September 1928; Visakhapatnam, Andhra Pradesh
Parents: S S V Rangachari and S Andalamma
Spouse and Children: S K Rajamani; one *s*, one *d* (Srinivas, Aruna)
Address: Flat No. 401, Sharath Apartments, 6th Cross, K R Layout, J P Nagar 6th Phase,
Bangalore 560 078, India
Tel. (080) 2663 5508 (R)
email: drskchari@gmail.com

Education: Andhra Univ.: BSc Hons 50, MSc 51, DSc 56.

Career: Andhra Univ.: Demonstrator 51–52; Govt of India Sr Res. Scholar 53–56, Lecturer 56–57; BARC, Bombay, Spectroscopy Dn: Sci. Offr 58–81, Head 81–88; National Res. Council, Canada: Vis. Sci. 67–68; Herzberg Inst. of Astrophysics, Canada: Vis. Res. Offr 80–81.

Scientific Work: Carried out extensive studies on the infrared, Raman and electronic spectra of a series of dihalogenated benzenes and obtained their fundamental frequencies in the ground and excited electronic states. Set up the first flash-photolysis unit in the country, at BARC, Bombay, to study the spectra of free-radicals and other transient species. From a systematic study of the flash-photolysis of several five-membered organic ring compounds, discovered the spectra of new free radicals like HCCO, HCCS, HCCSe and HNC. Obtained for the first time, the emission spectra of the rare gas halide radicals, xenon and krypton flourides, and showed that these involve bound-free electronic transitions; the present-day high-power rare gas excimer lasers involve these transitions. Carried out studies on the photophysical energy transfer in electronically excited states. Set up the laser flash-photolysis system utilizing the excimer laser to achieve nano-second time resolution. Developed a molecular spectroscopic method, based on the emission spectrum of the BO molecule, for the quantitative determination of the isotopic composition of 10B and 11B in BF_3 gas used in neutron counters.

Important Publications: **(1)** Theoretical study on the electronic states of formylcarbene (HC•CHO) and triplet ketene (H_2CCO) and the ultraviolet absorption spectra attributable to these molecules (2008) *J. Phy. Chem.* **A112**, 4399–4404. **(2)** Theoretical study on the ground and excited states of dicyanocarbene (C_3N_2) and its isomers. A low-temperature matrix emission spectrum attributable to 2-cyano-2H-azirenylidene (2007) *J. Phy. Chem.* **A111**, 4849–4854. **(3)** Ab initio description of the ground and excited states of cyanogen isomers (2006) *J. Mol. Struc. Theochem* **768**, 119. **(4)** Theoretical study on the excited states of HCN (2005) *J. Chem. Phys.* **122**, 184323. **(5)** The 4114 Å absorption system of the HCCS radical (1981) *Faraday Discuss. Chem. Soc.* **71**, 205.

Memberships: Member: Indian Nuclear Soc.; Laser and Spectroscopy Soc. of India; Indian Soc. of Analytical Scientists.

Krishnamoorthy, Guruswamy

Elected: 2000
Position: Prof. & Dean, Graduate Studies, TIFR, Mumbai
Specialization: Biophysical Chemistry; Laser Spectroscopy; Macromolecular Dynamics
Date and Place of Birth: 10 May 1950; Kamudi, Tamil Nadu
Parents: Guruswamy Nadar and Muthammal
Spouse and Children: A Rosalind Marita; one *d*
Address: Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2301 & 2864 (O), (022) 2280 4732 (R), Mobile: 98921 00404
email: gk@tifr.res.in

Education: Madras Univ.: BSc 71, MSc 73; Univ. of Bombay: PhD 80.

Career: TIFR: Res. Assoc. 80–86, Fellow 86–90, Reader 90–95, Assoc. Prof. 95–99, Prof. 99–.

Scientific Work: The major emphasis of research in the past twenty years has been the studies on local and global dynamics of biomolecular systems with the grand aim of correlating dynamics with functions of these molecular systems in biology. Contribution began with the invention of a novel technique (1986) based on temperature-jump to study fast transport of protons across biological membranes. Using this, elucidated complex mechanisms in biological energy transduction. Subsequent work on the use of time-resolved fluorescence spectroscopy in biomolecular dynamics has resulted in several significant findings By measuring the cytoplasmic viscosity inside single living cells with micron-level resolution, showed the presence of intracellular viscosity gradients and cell type dependence of viscosity. Existence of nanometer sized clusters, called rafts, on cell surfaces and their dynamics related to membrane composition was convincingly demonstrated for the first time. In protein folding, the demonstration of continuous transition between native and unfolded states and the direct experimental visualization of folding funnel have far-reaching implications. The puzzle of ATP requirement in RecA-mediated DNA recombination was solved; it was shown that efficient strand exchange process requires a novel segmental dynamics in DNA caused by ATP hydrolysis. Fluorescence dynamics map of polypeptide was established as a novel method to get structural insights in unfolded proteins and protein aggregates and fibrils; this method will find use in complex systems which are beyond techniques such as X-ray crystallography NMR The mechanism by which base-pair mismatches in DNA, during its synthesis in cells, is identified by the protein MutS was revealed as due to alterations in the ultrafast dynamics of bases.

Important Publications: **(1)** Temperature-jump as a new technique to study the kinetics of fast transport of protons across membranes (1986) *Biochemistry* **25**, 6666–6671. **(2)** Enhancement of transmembrane proton conductivity of protonophores by membrane-permeant cations (1990) *Biochim. Biophys. Acta* **1024**, 298–306. **(3)** Intracellular dynamics seen through time-resolved fluorescence microscopy (1997) *Curr. Sci.* **72**, 835–845. **(4)** Structure is lost incrementally during the unfolding of barstar (2001) *Nature Struct. Biol.* **8**, 799–804. **(5)** Dynamics of DNA and protein-DNA complexes viewed through time-domain fluorescence (2006) *Rev. in Fluorescence*, Springer, pp. 311–340.

Memberships: Fellow: INSA 2009.

Awards & Distinctions: Chemical Research Soc. Medal.

Krishnamoorthy, Krishnaswamy

Elected: 2005
Position: Sci. and Project Dir, ARFI & Head, AACCR
Specialization: Atmospheric Aerosols; Radiation Budget and Climate Impact; Climatology
Date and Place of Birth: 7 January 1952; Karunagappally, Kerala
Parents: E Krishnaswamy and S Krishnambal
Spouse and Children: Latha; two *d* (Rohini, Renjini)
Address: ARFI, Space Physics Laboratory, Vikram Sarabhai Space Centre,
Thiruvananthapuram 695 022, India
Tel. (0471) 256 2404, 256 3927 (O), (0471) 232 3542 (R), Mobile: 94469 80544
email: krishnamoorthyspl@gmail.com, krishnamoorthy_k@vssc.gov.in

Education: Kerala Univ.: BSc 70, MSc 72, PhD 86.

Career: Vikram Sarabhai Space Centre: Sci. Asst 73–76, Sci. 76–.

Scientific Work: Fundamental contributions to the insightful discovery of the hitherto unsuspected significant role of aerosols (natural and anthropogenic) in influencing the radiative forcing of the earth atmosphere system. Has made extensive contributions in the proliferation, in the country, of the scientific research in the area of atmospheric aerosols, their microphysical properties, impact on the radiation balance of the Earth-Atmosphere system with implications to regional and global climate. Had developed in-house, the Multi-Wavelength solar Radiometer (MWR) for the spectral aerosol optical depth measurement. Also has setup a national network of 25 aerosol observatories with inter-departmental and institutional collaboration, with the MWR as its backbone, covering the length and breadth of India; from Trivandrum to Hanle, Nalia to Dibrugarh and also in the islands Minicoy and Port Blair. Has conceived and executed multi-platform field experiments such as ICARB with a national participation employing the network, extensive shipboard measurements supported with concurrent aircraft sorties and balloons.

Important Publications: **(1)** Aerosol characteristics and radiative impacts over the Arabian Sea during the intermonsoon season: Results from the ARMEX field campaign (2005) *J. Atmos. Sci.* **62**, 1, 192–206. **(2)** Wintertime spatial characteristics of boundary layer aerosols over peninsular India (2005) *J. Geophys. Res.* **110**, D08207. **(3)** Radiative effects of natural aerosols: A review (2005) *Atmos. Environ.* **39**, 2089–2110. **(4)** Aerosol spectral optical depths over Bay of Bengal: Role of transport (2003) *Geophys. Res. Lett.* **30**, 5, 1249, 1–4. **(5)** Characteristics of aerosols over a remote island, Minicoy in the Arabian Sea: Optical properties and retrieved size distributions (2000) *Q. J. R. Meteorol. Soc.* **126**, 81–109. **(6)** Investigations of marine aerosols over the tropical Indian ocean (1997) *J. Geophys. Res.* **102**, 18, 827–18, 842.

Memberships: Fellow: INSA 2008; NASI 2009; Life member: Indian Aerosol Science and Technology Assn, Indian Meteorological Soc.

Awards & Distinctions: PRL Award 98 • Assoc. Editor, J. Earth Syst. Sci. 2006 • Guest Editor, J. Adv. Meteorol. 2009.

Krishnamurthi, P*

Elected: 1934
Date of Birth: 22 January 1903
Last Address: 170, Third Main Road, Malleswaram, Bangalore 560 003, India
***Deceased:** 14 March 1966

Education: MA, DSc.

Career: IISc, Bangalore; Bangalore Chemical and Manufacturing Company Ltd, Bangalore: Industrial Chemist; Travancore Chem. Mfg. Co. Ltd: Founder.

Krishnamurthy, Edayathumangalam Venkatarama

Elected: 1972
Position: Prof., Australian Natl Univ.
Specialization: Parallel and Distributed Computing; Complex Systems; Computational Intelligence
Date and Place of Birth: 18 June 1934; Ariyalur, Tamil Nadu
Parents: Edayathu Siva Venkataraman and Annapurna Viswanathan
Spouse and Children: Bani; two s
Address: Computer Science Laboratory, Research School of Information, Sciences and Engineering
Australian National University, Canberra ACT 0200, Australia
Tel. (+61-2) 6125-8640 (O), (+61-2) 6249 7140 (R), Mobile: (+61-4) 0728 4743
email: Evk.Krishnamurthy@anu.edu.au, ariyalurk@gmail.com

Education: Univ. of Madras: BSc Hons 54, MSc 55, PhD 59; Univ. of Calcutta: Post-MSc 56.

Career: Univ. of Madras: Instrument Technologist and Lecturer 56–61; ISI, Calcutta: Reader 61–63, Assoc. Prof. 65–68; Univ. of Chicago, USA: Res. Assoc. 64–65; IISc, Bangalore: Prof. 70–84; Univ. of Waikato, Hamilton, New Zealand, Dept of Computer Sc.: Prof. and Head 84–91; Australian Natl Univ., Computer Sc. Lab.: Prof. 91–2000; Emeritus Prof. 2000–.

Scientific Work: Worked on computer design, programing languages, information systems, numerical algorithms. Developed new algebraic techniques for the reconstruction of three-dimensional objects using two-dimensional projections at different angles. Developed a new computer language for storing and retrieving chemical information. Developed an algorithm phonetic transcription of Tamil in roman script, complex system simulation.

Important Publications: **(1)** *Introductory theory of computer science* (1985) Springer Verlag, New York. **(2)** Methods and applications of error-free compuation (1984) *Texts and monographs in computer science*, Springer Verlag, New York. **(3)** Error free polynomial matrix computations (1985) *Texts and monographs in computer science*, Springer Verlag, New York. **(4)** *Transaction processing systems* (1992) Prentice Hall, New Jersey. **(5)** *Computational intelligence-in silico modelling using agent based systems* (2007) Springer Verlag, New York.

Awards & Distinctions: Raman Gold Medal 60 • S S Bhatnagar Award 78.

Krishnamurthy, Hulikal Ramaiyengar

Elected: 1991
Position: Prof., Dept of Phys., IISc, Bangalore
Specialization: Theoretical Condensed Matter Physics; Statistical Physics; Quantum Many-Body Theory
Date and Place of Birth: 21 September 1951; Bangalore, Karnataka
Parents: H J Ramaiengar and M V Ambujamma
Spouse and Children: Mandaville Rajlakshmi; one *s* (Chaitanya R Murthy)
Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 8658, (080) 2293 3282 (O), (080) 2341 6627 (R), Mobile: 98459 27227
email: hrkrish@physics.iisc.ernet.in; URL: http://www.physics.iisc.ernet.in/~hrkrish/

Education: Bangalore Univ.: BSc Hons 70; IIT, Kanpur: MSc 1972; Cornell Univ., USA: MS 74, PhD 78.

Career: Univ. of Illinois, USA, Phys. Dept: Res. Assoc. 76–78; IISc, Phys. Dept: Res. Assoc. 78–79, Lecturer 79–84, Asst Prof. 84–90, Assoc. Prof. 90–96, Prof. 96–; Nordita, Denmark: Guest Prof. 81; Ohio State Univ., USA, Phys. Dept: Vis. Asst. Prof. 87–88; Princeton Univ., USA, Vis. Res. Staff 88–89; Jawaharlal Nehru Centre for Advanced Sci. Res.: Hon. Sr Fellow 91–98, Hon. Prof. 98; Ohio State Univ., USA: Vis. Prof. 96–97; Harvard Univ., USA: Vis. Prof. 97; Univ. of Cincinnati, USA: Vis. Prof. 97 & 98; UC Davis, USA: Vis. Researcher 2007–08; Georgetown Univ., USA: Vis. Researcher 2008.

Scientific Work: First numerical renormalization group solution of the Anderson impurity problem. Scaling and bosonization solution of the two-impurity Kondo problem. Analysis of spiral spin correlations in lattice models of strongly correlated electrons. Analysis of the instabilities of the Nagaoka ferromagnetic state of the large-U Hubbard model. Mean-field theory of phase-transitions in the Bose–Hubbard model. Dynamical mean-field theory of lattice compressibility effects near the Mott transition. Development of the dynamical cluster approximation of embedding a causal self-consistent cluster in an effective medium. New theory for the colossal magneto-resistance and other hitherto poorly understood phenomena seen in doped manganites. Discovery and analysis of novel scaling phenomena in hysteresis in model spin systems. Novel applications of the density functional theory of freezing, e.g., to describe freezing in laser-modulated colloids, phonons, dislocations and solid-solid interfaces.

Important Publications: **(1)** Renormalisation group approach to the Anderson model of dilute magnetic alloys I & II (1980) *Phys. Rev.* **B21**, 1003, 1044. **(2)** Magnetic hysteresis in two model spin systems (1990) *Phys. Rev.* **B42**, 856. **(3)** Instability of the Nagaoka ferromagnetic state of the U = • Hubbard model (1990) *Phys. Rev.* **B41**, 2375. **(4)** Dynamical cluster approximation: Nonlocal dynamics of correlated electron systems (2000) *Phys. Rev.* **B61**, 12739. **(5)** Theory of insulator metal transition and colossal magnetoresistance in doped manganites (2004) *Phys. Rev. Lett.* **92**, 157203.

Memberships: Fellow: INSA 97; NASI 97 • Member: American Physical Soc.; Indian Physics Assn.

Awards & Distinctions: IBM Graduate Fellow 73–76 • INSA Young Scientist Award 83 • IASc Assoc. 83–86 • DAE-Raja Ramanna Prize of the JNCASR 2000 • MSIL Prof. IISc • Alumni Award for Excellence in Research for Science, IISc 2006 • J C Bose Natl Fellowship 2006– • Editor, *Pramana – J. Phys.* 1998–2007.

Krishna Murthy, L S*

Elected: 1937
Specialization: Geology
Last Address: 7, Yeshwanth Nagar, Poona 411 007, India
***Deceased**

Education: Univ. of Mysore: BSc 19.

Career: Central College, Bangalore: Lecturer 20–23; Hyderabad Geological Survey, Hyderabad-Deccan: Petrologist 23; Mines & Geological Survey, Hyderabad Govt: Superintending Geologist.

Scientific Work: Published papers on the geology of the western portion of the Raichur Do-ab with special reference to the gold-bearing racks of Dharwar bends; autoclastic conglomerates; experiments on stack evaporation of brine; the Palkanmadi conglomerate; probable horizon of the Nandikonda–Chintalpalam. Conglomerate in relation to the associates conglomerate; Deccan trap in parts of Gulbarga and Osmanabad districts, etc.

Memberships: Fellow: Geological Soc.

Krishnamurthy, Setharampattu Seshaiyer

Elected: 1989
Position: Prof., INSA Sr Sci., IISc, Bangalore
Specialization: Main Group Chemistry; Organometallic Chemistry
Date and Place of Birth: 21 May 1940; Madras
Parents: S R Sesha Iyer and Thirupramammal
Spouse and Children: Banumathi; two *s* (Ravi, Vijay)
Address: Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2401, (080) 2293 2382 (O), (080) 2351 6293 (R)
email: sskrish@ipc.iisc.ernet.in

Education: Univ. of Madras: BSc 60, MSc 62; IISc, Bangalore: PhD 68.

Career: IISc, Bangalore, Dept of Inorganic and Physical Chem.: Sr Res. Asst 68–69, Asst. Prof. 71–79, Assoc. Prof. 79–84, Prof. 84–2003, Hon. Prof. 2003–2007; Univ. of Sussex, UK: Res. Fellow 69–71.

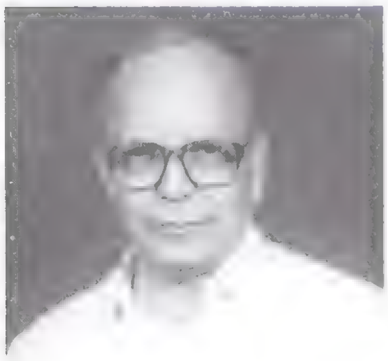
Scientific Work: Has contributed significantly to the chemistry of cyclic, linear and polymeric phosphorus-nitrogen compounds and transition metal organometallics of novel phosphorus ligands. The highlights of the work are the uncovering of a novel P_4N_5 bicyclic system, observation of ring-contraction-cum-rearrangement in a six-membered cyclic P-N system and the formulation of a unified mechanistic model to explain the regio- and stereo-selectivity in cyclophosphazene chemistry. Structural data on a myriad range of P-N compounds have provided new insights into the nature of the P-N bond. The work on transition metal chemistry of phosphazenes and phosphazanes has opened up new synthetic strategies for designing chiral transition metal catalyst systems and for anchoring transition metal moieties on phosphazene polymers. Recent research is focussed on (allyl) Pd complexes of P-N-P ligands and transition metal chemistry of phosphorus functionalized calix[4]arenes. Has brought about a successful symbiosis of inorganic heteroatom chemistry, phosphorus chemistry and organometallic chemistry.

Important Publications: **(1)** Cyclophosphazenes (1978) *Adv. Inorg. Chem Radiochem.* **21**, 41–112. **(2)** Studies of phosphazenes: Reactions of (triphenylphosphazenyl) pentachloro and pentafluoro cyclotriphosphazenes with sodium methoxide. Mechanistic aspects and their implications for nucleophilic displacement at a tetrahedral P(V) centre (1986) *Inorg. Chem.* **25**, 920. **(3)** Syntheses, spectroscopy, structures and conformations of λ^3-cyclotriphosphazanes. The role of negative hyperconjugation (1993) *Inorg. Chem.* **32**, 5447. **(4)** Reaction of λ^3-cyclotriphosphazanes with tetrochloro-ortho-benzoquinone: an unusual ring contraction rearrangement (1996) *Chem. Commun.* 1703. **(5)** Palladium(II) allyl complexes of chiral diphosphazane ligands: Ambident coordination behaviour and stereodynamic studies in solution (2003) *Dalton Trans.* 1016–1027.

Memberships: Fellow: INSA 90 • Member: Chemical Res. Soc. of India.

Awards & Distinctions: IISc Centenary Distinguished Alumni Award 2009.

Krishnamurti, Dharmaraja*



Elected: 1958
Specialization: Raman and Infrared Spectroscopy; Solid State Physics
Date and Place of Birth: 30 March 1929; Tiruchi, Tamil Nadu
Parents: K Dharmarajan and Srirangammal
Spouse and Children: Renuka; one *s*, two *d*
Last Address: No. 428, Ganesh Krupa, 4th Main Road, 4th Stage,
T K Layout, Kuvempunagar, Mysore 570 023, India
***Deceased:** 14 May 2003

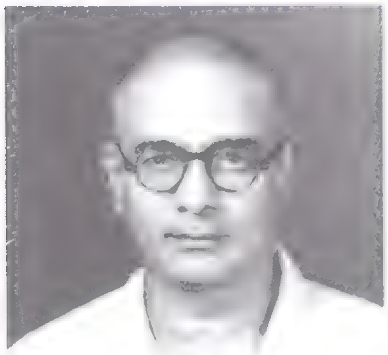
Education: Univ. of Madras: MA 50, PhD 55, DSc 61.

Career: RRI, Bangalore: Res. Scholar 50–54, RA 55–56, Asst Prof. 56–61; Univ. of Mysore, Mysore: Reader 61–63, 65–71, Prof. 71–89; Defence Lab., Jodhpur: Sr Sci. Offr. 63–65.

Scientific Work: Distinguished for investigations research in the following areas: optics of stratified media and reflection colours of minerals; Raman and IR spectra of crystals; birefringence of liquid crystals and their molecular orientational order.

Awards & Distinctions: Raman Centenary Medal 88.

Krishnamurti, K*



Elected: 1934
Specialization: Physical Chemistry; Colloid Science; Surface Films
Date and Place of Birth: 24 November 1902; Kakinada, Andhra Pradesh
Spouse and Children: Pramila; five *d*
Last Address: 93/4A, Erandawana, Pune 411 004, India
***Deceased:** 8 December 1988

Education: Calcutta Univ.: MSc 25; Imperial College, London: DSc 29.

Career: Govt College of Sci., Nagpur, Dept of Chem.: Prof. and Head 30, Principal 38–57; Baghdad Univ., Iraq: Prof. of Chemistry.

Scientific Work: Studies included scattering of light in colloidal solutions of protein in the course of ageing and slow coagulation; mutual coagulation mechanisms, effect of changes in surface tension, viscosity, volumetric relationships, influence of adsorbed ions; ultramicroscopic study of gelatin solutions, adsorption equations and adsorption isotherms; adsorption and changes in electrical conductivity in bacterial growth and of animal cells; electrical conductivity of thin films; state of water in gels and forces holding them at various stages of swelling; relation between solubility and absorption spectra of sparingly soluble salts.

Krishnan, Kariamanikkam Srinivasa*

Elected: 1934
Specialization: Raman Effect; Crystal Magnetism; Magnetochemistry; Magnetic Anisotropy of Magnetic Crystals
Date and Place of Birth: 4 December 1898; Tirunelveli, Tamil Nadu
Parents: Kariamanikkam Srinivasa Iyengar and Lakshmi
Last Address: National Physical Laboratory, New Delhi, India
***Deceased:** 14 June 1961

Education: Univ. of Madras: BA 18, MSc 27, DSc 33.

Career: Christian College, Madras: Demonstrator in Chem.; IACS, Calcutta: Res. Assoc. 20–29, Mahendralal Sircar Prof. of Phys. 33; Dacca Univ.: Reader in Phys. 29–33; Univ. of Allahabad: Prof. of Phys. 42; Natl Physical Lab., New Delhi: Dir 48–61.

Scientific Work: Carried out a series of important investigations on the scattering of light, molecular optics and Raman effects. Initiated and conducted with conspicuous success numerous investigations on the magnetic properties of crystals. Outstanding investigations on the optical properties of crystals and X-ray crystallography were also carried out. Built an active group to carry out research on the thermal and electrical properties of metals and alloys. Collaborated with C V Raman in studying the changes in the frequency and polarization of light associated with molecular scattering. Developed elegant and precise experimental methods to measure the magnetic anisotropy of dia- and paramagnetic crystals. Developed methods for the accurate measurement of feeble susceptibilities and anisotropies. The resulting papers laid the foundation for the modern fields of crystal magnetism and magnetochemistry.

Memberships: Fellow: INSA 35; Royal Soc., London 40; US National Acad. of Sci.; • President: Phys. Sec. of Indian Sc. Congress.

Awards & Distinctions: Knighthood 46 • President: INSA 53–54 • Padma Bhushan 54 • S S Bhatnagar Prize 61 • National Prof. of Govt of India.

Krishnan, Kumarapuram Vythilinga*

Elected: 1934
Specialization: Malariology and Rural Hygiene
Date and Place of Birth: 4 July 1896; Calicut, Kerala
Parents: Vythilinga Venkateswaran and Subholakshmi
Spouse and Children: Visalakshmi Ammal (deceased) and Ivy Massih; one *s*, three *d*
Last Address: All India Institute of Hygiene and Public Health, Calcutta, India
***Deceased:** 30 March 1978

Education: Madras Medical College: 19; London School of Tropical Medicine: DB, MRCP; Johns Hopkins Univ.: DSc 31.

Career: King Inst., Madras: Asst Surgeon 19–25; All India Inst. of Hygiene and Public Health, Calcutta: Prof. of Malariology and Rural Hygiene 34–40, Prof. of Microbiology 40–52, Dir 52–56; Kabul Univ., Afghanistan: WHO Consultant for Preventive and Social Medicine 56–64.

Scientific Work: Achieved considerable success, and became a renowned and top-ranking medical scientist in India. Scientific publications cover: sandfly as a vector for transmission of Kala-azar; immunity in malaria; standardization of antigens for flocculation test in syphilis; protein hydrolysate for intravenous administration in advanced cases of inanition involved in the Bengal famine during World War II; scrub typhus infection.

Memberships: Fellow: INSA 35: Royal College of Physicians; Royal Soc. of Edinburgh.

Awards & Distinctions: U N Brahmachari and Dutta Memorial Prize • King of Afghanistan Medal.

Krishnan, Maharajapuram Sitaram*

Elected: 1934
Specialization: Economic Geology; Mineralogy and Petrology
Date and Place of Birth: 24 August 1898; Maharajapuram, Thanjavur, Tamil Nadu
Parents: M Sitaram
Spouse and Children: three *d*
Last Address: Department of Geology, Osmania University, Hyderabad 500 007, India
***Deceased:** 24 April 1970

Education: Madras Univ.: BA Hons 19, MA 21; Royal College of Science: Assoc. 22; Imperial College of Sci., London: DIC 23; Univ. of London: PhD 24; Trained in Applied Geophysics and Mining Geology, Imperial College, UK 35–36; and in Petrology Mining and Atomic Minerals in UK, Austria USA and Canada 47.

Career: Presidency College, Madras: Demonstrator 19–21; GSI: Geologist 24–43, Superintending Geologist 43–48, Dir 51–55; Forest College, Dehra Dun: Prof. of Geology 28–30; Presidency College, Calcutta: Prof. of

Geology 33–35; Indian Bureau of Mines, New Delhi: Dir 48–51; Mineral Adviser to the Govt of India 55–57; Indian School of Mines, Dhanbad: Dir 57–58; Andhra Univ., Visakhapatnam, Dept of Geology & Geophysics: Prof. and Head 58–60; National Geophysical Res. Inst., Hyderabad: Dir 61–63.

Scientific Work: Carried out pioneering stratigraphic studies on Gangpur Series of Rocks. Also carried out investigations for radioactive and rare earth minerals which were to form the nucleus of the Atomic Minerals Division of the Department of Atomic Energy. The Neyveli Lignite Project was the result of his initiative and pioneering work. Was responsible for training and guiding a large team of youngsters in field geology to make them competent geologists.

Memberships: Member: London Geological Soc.; American Inst. of Mining and Metallurgical Engg; American Mineralogical Soc. • Fellow: INSA 35.

Awards & Distinctions: Royal Asiatic Soc. of Bengal P N Bose Medal • Padma Bhushan 70.

Krishnan, Rangachari

Elected: 1982
Specialization: Physical Metallurgy and Materials Science
Date and Place of Birth: 26 December 1935; Trichy, Tamil Nadu
Parents: K Rangachari and R Rajalakshmi
Spouse and Children: Mythili; one *s*, one *d*
Address: F-3, Parkside Manor, 162, 5th Main, Defence Colony, Bangalore 560 030, India
Tel. (080) 2526 8882 (R), Mobile: 99808 47568
email: rangachari.krishnan@gmail.com

Education: Madras Univ.: BSc Hons 56, MA 57, MSc 57; Bombay Univ.: PhD 67.

Career: BARC, Bombay, Dept of Metallurgy: Sci. Offr 58–82, Head of Dn 82–85; Naval Chemical & Metallurgical Lab., DRDO, Bombay: Dir 85–88; Defence Res. Development Organization, New Delhi: Chief Controller 88–90; GTRE, Bangalore: Dir 90.

Scientific Work: Phase transformation and structure property connections in zirconium alloys, titanium alloys and stress; X-ray metallography to study irradiation growth in uranium and for stacking fault probability estimation; X-ray line profile analysis and a wide variety of FCC, HCP and BCC metals and alloys; sintering studies in NO_2, THO_2, PLZT, ceramics, etc.; studies on cupro-nickels, aluminium bronzes and special steels for marine applications; investigations on choice of high temperature materials for gas turbine applications, their weldability, heat-treatment, distortation characteristics, etc.

Important Publications: **(1)** Recrystallisation of alpha uranium, TP 234 (1961) *Trans. Indian Inst. Met.* **(2)** X ray study of cold work in alpha uranium, TP 235 (1961) *Trans. Indian Inst. Met.* **(3)** X ray line broadening studies of cold worked uranium (1962) *Acta Met.* **10**, 81. **(4)** Microduplex structure in the alloy Ti-6Al-4V (1978) *Trans. Indian Inst. Met.* **(5)** Beta precipitation in a Zr-5 Ta martensite thermodynamics (1979) *Z. Metallkunde* 70.

Memberships: Fellow: INAE 88; NASI 92.

Krishnan, Rappal Sangameswara*

Elected: 1944
Specialization: Raman Spectroscopy; Light Scattering; Solid State Physics
Date and Place of Birth: 23 September 1911; Chittur, Kerala
Parents: R P Sangameshwara Iyer and Parvathavardhin Ammal
Spouse and Children: P K Rajammal; two *s*, two *d*
Last Address: No. 232, 18th Cross, Upper Palace Orchards, Sadashivanagar, Bangalore 560 080, India
***Deceased:** 2 October 1999

Education: Univ. of Madras: BA Hons 33, MA 34, DSc 37; Univ. of Cambridge: PhD 41.

Career: IISc, Bangalore, Dept of Phys: Res. Scholar 33–37, Lecturer 42–45, Asst Prof. 45–48, Prof. 48–72, Head 48–70, DST Project on Documentation of Raman Effect Data: Principal Investigator 77–82; UGC Retired Sci. 72–73; Cavendish Lab. UK: 1851, Exhibition Scholar 38–41; Kerala Univ., Trivandrum: Vice-Chancellor 73–77; CSIR Project of Source Book on Raman Effect: Investigator in-Charge, Emeritus Sci. 90–94; NAL, Bangalore: Vis. Sci. 87–90.

Scientific Work: Discovered a new optical effect known as Krishnan effect, a universal phenomenon which follows from the application of the reciprocity theorem to light scattering enabling one to assess the size and shape of the scattering particles in colloidal media or in liquids. Demonstrated the existence of deuteron-tritium reaction and was the first to establish the deuteron-induced fission in uranium and thorium. Developed the ultraviolet technique of excitation for Raman spectroscopy and successfully recorded for the first time the second-order Raman spectra of diamond & alkali halides thus giving experimental confirmation of Born's lattice dynamical theory. Worked out the theory of Brillouin scattering in cubic & birefringent crystals. Many new investigations on thermal expansion, elastic constants and photoelastic constants were carried out and undertook work of dating of Indian rock formations using nuclear geochronological techniques.

Important Publications: **(1)** *Progress in crystal physics* (1958) Interscience Publisher. **(2)** *Thermal expansion of crystals* (1978) Pergamon Press. **(3)** Historical introduction and Brillouin scattering (1971) *Raman effect* Marcel Dekker. **(4)** *Bibliography on Raman effect*, 5 vols (1998), CSIR New Delhi.

Memberships: Fellow: American Physical Soc. 40; INSA 50; London Institute of Physics 53.

Awards & Distinctions: C V Raman Centenary Gold Medal 88 • IISc Distinguished Alumni 84.

Krishnan, Sankaranarayanaiyer

Elected: 1974
Specialization: Electronics; Digital Systems
Date and Place of Birth: 26 November 1934; Mahadanapuram, Kanya Kumari, Tamil Nadu
Parents: Sankaranarayanaiyer and Lakshmi
Spouse and Children: Savithri; two *d*
Address: 49, II Cross, P&T Colony, R T Nagar, Bangalore 560 032, India
Tel. (080) 2333 3139 (R), Mobile: 99004 19481
email: skrish49@hotmail.com

Education: Travancore Univ.: BSc Hons 55, MSc 56; IISc, Bangalore: PhD 59.

Career: IISc, Bangalore, Phys. Dept: Res. Asst 55–59; ATIRA, Ahmedabad: Sci. 59–60; NAL, Bangalore: Head of Electronics Dn 60–78, Adviser to Dir 88–93; RRI, Bangalore: Prof. 75–88, 93–94, Consultant 94–.

Scientific Work: Contributed to development of data acquisition, instrumentation and other aspects of electronics and in particular several digital systems for processing data from wind tunnel measurements on aerodynamic models. Contributed in designing digital systems consuming extremely low power and capable of working unattended for long intervals of time in a hostile environment; pulsed high current sources for magnetization and for magnetic propulsion of objects using power semiconductor devices.

Awards & Distinctions: Shri Hari Om Ashram Prerit Vikram Sarabhai Research Award 74 • Inventions Promotion Award for the development of spark erosion machines.

Krishnan, Varadachari

Elected: 1984
Position: Hon. Prof., JNCASR, Bangalore
Specialization: Inorganic Chemistry; Bio-inorganic Chemistry
Date and Place of Birth: 8 November 1937; Srirangam, Tamil Nadu
Parents: S Varadachari and Ranganayaki Ammal
Spouse and Children: Merlyn; two *s*, one *d*
Address: Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2759, (080) 2362 2518 (O), (080) 2341 9380 (R)
email: vkripc@ipc.iisc.ernet.in, vkrish@jncasr.ac.in

Education: Univ. of Madras: BSc 54; BHU: MSc 56; IISc, Bangalore: PhD 66.

Career: H C Oersted Inst., Univ. of Copenhagen, Denmark: Res. 66–67; Texas A&M Univ. College Station, USA: Res. Assoc. 67–70; IIT, Bombay, Dept of Chem.: Lecturer/Asst Prof. 70–74; IISc, Bangalore: Asst Prof. 74–79, Assoc. Prof. 79–83, Prof. 84; Jawaharlal Nehru Centre for Advanced Scientific Res., Bangalore: Academic Programmes Head; Tatachem Endowment Prof., President 2000–03; Hindustan Lever Res.: Prof. 2003–.

Scientific Work: Work spans crown-ether coordination chemistry, photochemistry and photophysics of metalloporphyrins and chlorophylls. Developed many interesting biomimetic model systems, porphyrin-chlorophyll assemblies, bis-, tris- and tetraporphyrin systems, porphyrin-acceptor entities and studied them extensively. Demonstrated the critical requirements of distal separation and orientation features that are essential for ultrafast excitation energy migration and photoinduced intra and inter molecular electron transfer reactions. Novel super molecular porphyrin-crown ether assemblies and conitz bearing bisporphyrin systems developed have provided a better insight into the nature of host-guest interaction within the molecular network.

Memberships: Fellow: INSA 86; TWAS 96.

Awards & Distinctions: IISc Alumni Award of Excellence 93 • INSA Golden Jubilee Award 1998.

Krishnaswamy, Kolar Ramakrishnaiya*

Elected: 1934
Specialization: Industrial Chemistry
Date and Place of Birth: 14 August 1898; Kangayam, Coimbatore, Tamil Nadu
Parents: Ramakrishna Iyer and Lakshamma
Spouse and Children: Venkatalakshamma; five *s*, three *d*
Last Address: General Chemistry Department, Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 28 June 1964

Education: Mysore Univ.: BSc 18; Univ. of London: PhD 30.

Career: Vani Vilas Inst., Mysore: Lecturer 18; Sandalwood Oil Factory, Mysore: Chemist; IISc, Bangalore: Asst in Inorg. Phys. Chem Dept 21–28, Lecturer in Gen. Chem. Dept 30–45, Sr Prof. and Head of Gen. Chem. 52–61; Govt of Bihar: Industrial Chemist 45–47, Dir of Industries 47–52.

Scientific Work: As a chemist in the Sandalwood Oil Factory, helped standardize the method of distillation. Carried out important work involving chemical analysis and also laboratory scale industrial operation concerning utilization of various raw materials. This work became the bedrock for starting of several industries in the State such as lac, soaps and glycerine, iron and steel, manganese, cement, paper, phosphate and fertilizers. Analysed samples of ores and minerals like iron, manganese, chromite and others. Solely responsible for setting up of the super phosphate factory at Sindhri, High Tensional Insulation Factory at Ranchi.

Memberships: Fellow: INSA 47; Royal Inst. of Chem.; Natl Inst. of Sci. • Member: Metallur. and Geological Inst. of India; Atomic Energy Commission.

Krishnaswami, Sethunathasarma

Elected: 1986
Position: INSA Sr Sci., PRL, Ahmedabad
Specialization: Nuclear Oceanography; Low Temperature Geochemistry
Date and Place of Birth: 21 May 1945; Trivandrum, Kerala
Parents: Sethunathasarma and Lekshmi Ammal
Spouse and Children: Nanda; one *s*, one *d* (Jayan, Jayashree)
Address: Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4305 (O), (079) 2630 2640 (R)
email: swami@prl.res.in

Education: Univ. of Kerala: BSc 63; DAE Training School 63–64; Univ. of Bombay: PhD 74.

Career: TIFR, Bombay: Res. Assoc. 64–72; Scripps Inst. of Oceanography, La Jolla, California: Res. Assoc. 71–72; PRL, Ahmedabad: Fellow 73–77, Assoc. Prof. 77–86, Prof. and Dean 87–93, Sr Prof. 93–2005, Dir 2004–05, Vis. Prof. and INSA Sr Sci. 2007–; Yale Univ., New Haven, USA: 76–78, 80–83 and 86–87.

Scientific Work: Research focus is in the field of isotope geochemistry, particularly on the use of environmental radioactive and radiogenic isotopes to address various low temperature biogeochemical processes occurring on surficial environments. Has developed novel approaches based on U-Th series nuclides to obtain quantitative information on: accumulation rates of sediments deposited in lakes and coastal marine environments over the past century; nature and time scales of scavenging processes in surface and deep waters of the ocean; adsorption/desorption processes in sub-surface waters and nuclide retardation; and time scales of growth and turnover of ferromanganese nodules on the ocean floor and in lakes. Has made major contributions to the studies of chemical weathering processes and their rates in the Himalaya and the Deccan Traps and the impact of these processes on the geochemical cycles of selected elements and isotopes in the ocean and long term global change.

Important Publications: **(1)** Geochronology of lake sediments (1971) *Earth Planet. Sci. Lett.* **11**, 407. **(2)** ^{210}Pb-^{226}Ra disequilibrium in the Santa Barbara Basin (1975) *Earth Planet. Sci. Lett.* **27**, 388. **(3)** Strontium isotopes in the Ganga–Brahmaputra river system: Weathering in the Himalaya, fluxes to the Bay of Bengal and contribution to the evolution of oceanic ^{87}Sr/^{86}Sr (1992) *Earth Planet. Sci. Lett.* **109**, 243. **(4)** Chemical weathering in river basins of India (2005) *Curr. Sci.* **89**, 841. **(5)** Sr and Nd isotopes in river sediments from the Ganga basin: Sediment provenance and spatial variability in physical erosion (2008) *J. Geophys. Res.* **113**, F03006.

Memberships: Fellow: INSA 89; NASI 92; TWAS 2000; Indian Geophysical Union; Geological Soc. of India; Am. Geophys. Union; Geochem. Soc. and EAG.

Awards & Distinctions: INSA Young Scientist Medal 75 • M S Krishnan Medal 81 • S S Bhatnagar Prize 84.

Krishnaswamy, Kamala

Elected: 1993
Specialization: Internal Medicine; Nutritional Sciences; Clinical Pharmacokinetics
Date and Place of Birth: 4 April 1940; Hyderabad, Andhra Pradesh
Parents: KSR Chari, Pattammal
Spouse and Children: Krishnaswamy; Two s (Vijay Kodiyalam and Sanjay)
Address: House No. 1-2-98/2, Sriniketan, Kakatiyanagar Colony, Habsiguda, Hyderabad 500 007, India
Tel. (040) 2715 3248 (R); Mobile: 98662 35238
email: sri21kk@hotmail.com, sri21kk@yahoo.com

Education: Osmania Univ.: MBBS 63, MD 68.

Career: National Inst. of Nutrition, Hyderabad: Asst Res. Offr 64–68, Res. Offr 68–71, Sr Res. Offr 71–77, Asst Dir 77–84, Dy Dir 84–2002; Emeritus Sci. 2002–05; Dir 97–2002; Sr Dy Dir 92–97.

Scientific Work: Interested in diet related chronic diseases such as cancer and cardiovascular diseases and diet drug interactions. Demonstrated that the undernourished are metabolically susceptible to environmental carcinogens and micronutrient deficiencies are important risk modifiers of epithelial cancers and are excellent chemopreventive agents in precancerous states. Demonstrated that the intermediate end points, such as micro nuclei and DNA adducts, are decreased by micronutrients in human precancerous states. Turmeric has been identified as a strong antimutagen and anticarcinogen acting at both initiation and promotional stages of cancer. Elucidated pharmacokinetics and dynamics of commonly used drugs in malnutrition and has established basis for higher toxicity in malnutrition and dose adjustment. Demonstrated early markers of lead toxicity and its chelation by thiamin in animals and in humans. Contributed towards understanding of aetiopathogenesis of pellagra and biochemical basis for mental depression. Elucidated role of pyridoxine in pellagra. Worked on genu valgum in endemic fluorotic areas and other food related toxic disorders.

Important Publications: **(1)** Microsomal enzymes in malnutrition as determined by plasma half life of antipyrine (1977) *British Med. J.* **I**, 538–540. **(2)** Effect of turmeric and curcumin on BP-DNA binding carcinogenesis (1993) **14**, 493–496. **(3)** Nonclinical toxicology study of recombinant-plasmid DNA anti-rabies vaccines (2006) *Vaccine* **24**, 15, 2790–2798. **(4)** *Turmeric: The salt of the Orient is the spice of life* (2006) Allied Publishers Pvt Ltd, New Delhi. **(5)** Developing and implementing dietary guidelines in (2008) *India. Asia Pac. J. Clin. Nutr.* **17** Suppl. 1:66–69. Review.

Memberships: AP Akademi of Sci. 94; NAMS 94 • Fellow: NASI 96; INSA 98; Intl Union of Nutritional Sci. 2001; TWAS 2003; NAAS 2003.

Awards and Distinctions: Young Scientist Award 72 • Shakuntala Amir Chand Prize 73 • V N Patwardhan Prize 77 • Kamala Menon Medical Res. Award 88 • CIBA-GEIGY Award 89 • Basant Devi Amirchand Prize • AP Akademi of Sci. 1997 • ASTC-Eminent Women Sc. Award 2004 • Eminent Pharmacologist, Indian Pharmacological Soc. 2007 • Women's Univ.: heading women scientist and professionalist by Mother Teresa 2009.

Krishnaswamy, Srinivasan*

Elected: 1961
Specialization: Environmental Biology; Copepoda Taxonomy; Physiology
Date and Place of Birth: 15 February 1926; Tanjore, Tamil Nadu
Parents: K S Srinivasan and Mangalam
Spouse: Premila
Last Address: Madurai Kamaraj University, Madurai 625 021, India
***Deceased:** 20 November 1988

Education: Presidency College, Madras: BSc, MSc, PhD; Univ. of Southampton: PhD, DSc.

Career: Univ. of Madras, Dept of Zoology: Reader 52–62; PG Extn Centre, Tallakulam: Prof. and Head; Madurai Kamaraj Univ.: Prof., Vice-Chancellor 85–88.

Scientific Work: In the 50s had adumbrated the sea changes biological sciences were to undergo and encouraged physiological studies. Published papers on the fine structure of copepods in the *Proceedings of the Royal Society*. Researched in molecular biology, biochemistry, photosynthesis, microbiology, aqua and fish culture, cancer biology, etc. of crustaceans, sea urchins, osmoregulation. Initiated scholarly researches on astatic ephemeral tropical pond systems. Was one of the pioneering architects of integrated biology teaching in Indian Univ., and verily the founder of the school of biological sciences in Madurai Kamaraj University.

Krupanidhi, Saluru Baba

Elected: 2003
Position: Prof., IISc, Bangalore
Specialization: Ferroelectrics; III-V Semiconductors; Thin Films; Epitaxy; Solid State Devices; MEMS
Date and Place of Birth: 1 July 1951; Vizianagaram, Andhra Pradesh
Parents: S Gokul Das and S Sarojini Devi
Spouse and Children: Bharathi Devi; two *s*
Address: Materials Research Centre, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 1330, (080) 2293 2781 (O), (080) 2341 8550 (R)
email: sbk@mrc.iisc.ernet.in

Education: Andhra Univ.: BSc 72, MSc 75, Delhi Univ.: PhD 81.

Career: Queen Univ., Canada: Postdoc 81–84; Motorola Inc., USA: Principal-Staff Sci. 84–88; Penn State Univ., USA: Prof. 88–95; IISc: Prof. 95–.

Scientific Work: Research in the last 20 years focussed on physics and development of epitaxial thin films of complex oxides for electro-optic, ferroelectric (FRAMs, & MEMs), and high permittivity (DRAMs) applications. Major contributions in the area of complex perovskites include ECR plasma assisted development of low temperature epitaxy, modelling of crystallization kinetics in perovskite thin films under strong thermal gradients, and detailed microstructure-conduction mechanisms. Significant work done for the first time categorized the microstructure evolution and its subsequent impact on conduction mechanisms. These models are being widely adapted by research groups in USA, Europe and Japan. In the area of III-V compounds, main contributions are auto carbon doping, band gap narrowing in polar epitaxy on nonpolar substrates, leading to the development of a variety of GaAs based space photovoltaics and quantum structures.

Important Publications: **(1)** Ferroelectric thin films & device application (1993) *Multicomponent and multilayered thin films of advanced microtechnologies: Techniques, fundamentals and devices,* Kluwer Academic Publishers, Netherlands, 601. **(2)** Multi-ion beam reactive sputter growth of ferroelectric thin films (1996) *Integrated ferroelectrics*, Gordon and Breach Publishers, 427. **(3)** Low energy induced effects in multi-component oxide ferroelectronic thin films (1995) *Electroceramic thin films*, Kluwer Academic Publishers, Netherlands, 23. **(4)** *ASM handbook of electronic materials* (2001) **(5)** High permittivity ferroelectric oxide films for DRAM device applications (2001) *A handbook of electronic and photonic materials.*

Awards & Distinctions: Invention Awards, Motorola, USA • Best Scientist Award, Motorola, USA • MRSI Medal.

Kulkarni, Bhaskar Dattatraya

Elected: 1988
Position: Sci., NCL, Pune
Specialisation: Chemical Reaction Engineering; Mathematical Modelling and Simulation
Date and Place of Birth: 5 May 1949; Nagpur, Maharashtra
Parents: Dattaraya Trimbak Kulkarni and Nirmala
Spouse and Children: Kunda; two *d*
Address: Chemical Engineering Division, National Chemical Laboratory, Pune 411 008, India
Tel. (020) 2590 2772, (020) 2590 2150 (O), (020) 2589 8572 (R)
Mobile: 98817 29726
email: bd.kulkarni@ncl.res.in

Education: Univ. of Nagpur: BTech 70, MTech 72, PhD 78.

Career: NCL, Pune, Chemical Engg Dn: Chemical Engineer 76–79, Sci. 79–; Univ. of Notre Dame, USA: Vis. Prof.

Scientific Work: Contributed to mathematical modelling, simulation and analysis of chemical reactions and reactors. Introducing a new stochastic formalism, showed the importance of noise in bringing about certain transitions and their relevance to the design of such systems. Studies in nonlinear sciences have led to new control strategies for the design and control of the complex patterns and behaviour of reacting systems.

Memberships: Fellow: INAE 89; INSA 91; Maharashtra Acad. of Sci.; TWAS 2001.

Awards & Distinctions: INSA Medal for Young Scientists 80 • Amar Dye-Chem Award 81 • IICE Herdillia Award 88 • S S Bhatnagar Prize 88 • NCL Res. Foundation Best Scientist Award of the Year 92 • Chem. Tech CEW Award 2000 • FICCI Award 2000 • J C Bose Fellow 2007.

Kulkarni, Mohan Gopalkrishna

Elected: 1996
Position: Head, Polymer Sci. and Engg, NCL, Pune
Specialization: Polymer Science and Engineering
Date and Place of Birth: 14 November 1950; Poona, Maharashtra
Parents: Gopalkrishna and Malati
Spouse and Children: Medha; two *d*
Address: Polymer Science & Engineering, National Chemical Laboratory, Pune 411 008, India
Tel. (020) 2590 2178 (O), (020) 2588 2189 (R)
email: mg.kulkarni@ncl.res.in

Education: Bombay Univ.: BSc 70, BSc Tech 73, MSc Tech 76, PhD Tech 81.

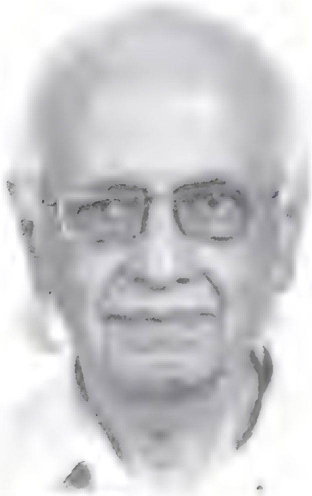
Career: Asian Paints: Res. Chemist 73–74; NCL, Sci. 79–.

Scientific Work: Research interests primarily concern with diffusion in polymer solutions and hydrogels and the implications thereof in designing polymers for gas separation and hydrogels for delivery systems in the release of active ingredients either physically dispersed or chemically linked to the polymer backbone. An analysis of the factors responsible for the release and their relative importance in relation to one another has led to polymer systems which would provide an alternative to enteric coatings. Research interests also include designing biodegradable polymer systems for the delivery of peptides and proteins and synthesis of polymers based on molecular imprinting techniques which exhibit enzyme-like hydrolytic activity, and also investigation of their applications in reactions in organic media and in polymers for imaging applications.

Memberships: Fellow: Maharashtra Acad. of Sci. 90; INAE 2005.

Awards & Distinctions: IASc Assoc. 84–88.

Kulkarni, Prabhakar Vasudeo



Elected: 1975
Specialization: Atmospheric Optics; Aeronomy; Infrared Astronomy
Date and Place of Birth: 19 October 1930; Sangli, Maharashtra
Parents: Vasudeo P Kulkarni and Radha
Spouse and Children: Mandakini; one *s*, two *d* (Narendra, Anuradha, Madhuvanti)
Address: c/o Narendra P Kulkarni, 202, Sadguru Co-operative Housing Society,
Sector 19, Flat 20, Kharghar, Navi Mumbai 410 210, India
Tel. (022) 2774 5204 (R), Mobile: 99670 31930
email: nanapvk@gmail.com

Education: Univ. of Poona: BSc Hons 50, MSc 52, PhD 58.

Career: N. Wadia College, Pune: Lecturer 52–54; Poona Univ.: Postdoc Fellow 58–60; MES College, Pune, Dept of Phys.: Head 60–61; Natl Res. Council, Canada: Postdoc Fellow 61–63; Hawaii Inst. of Geophys, Hawaii: Res. Assoc. 63–65; Physical Res. Lab., Ahmedabad: Fellow 65–70, Assoc. Prof. 70–76, Prof. 76–86, Sr Prof. 86–90, Infrared Astronomy Unit, PRL: Chmn 79–98. Shivaji Univ., Kolhapur: Hon. Prof.

Scientific Work: Built the first photoelectric photometer for measuring faint glows of the night sky. Discovered a second layer emitting green glow due to oxygen in the earth's atmosphere; infrared gravity waves from the periodic temperature variations in the night time mesosphere. Detected and followed during night, the dynamics of the appleton anomaly in the tropics from the ground based measurements of the optical emissions These results were later confirmed by satellite borne photometers. Pioneered ground based infrared astronomical observations in India. First IR measurements in India were made on Be stars, R CorBor stars, etc. Experimentally discovered the IR bursts from the X-ray rapid burster-Liller 1. Planned and coordinated with assistance from various agencies in India the first Infrared Astronomical Observatory at Gurushikhar, Mt Abu in Rajasthan.

Important Publication: **(1)** Discovery of IR bursts from Liller I/MXB 1730–333 (1979) *Nature*, **280**, 819. **(2)** Experimental evidence of gravity waves at 80–90 km region from OH night airglow observations (1980) *Proc. Ind. Acad. Sci.* **89**, 109. **(3)** Rocket study of 5577Å OI emission at night over the magnetic equator (1976) *J. Geophys*, Res. **81**, 3740. **(4)** Tropical Arglow (1974) *Ann. Geophys.* **30**, 105. **(5)** Polarization measurements for the Bok global B361 (1985) *Mon. Not. R. Astron. Soc.* **212**, 131.

Memberships: Member: International Astronomical Union • President: (Past) Astronomical Soc. of India • (Past) Chmn: Govt of India Advisory Committee on Astronomy and Astrophysics.

Kulkarni, Sulabha Kashinath

Elected: 2004
Position: Prof., IISER, Pune
Specialization: Surface Physics; Materials Science; Nanoscience
Date and Place of Birth: 1 June 1949; Satara, Maharashtra
Parents: Vasant Vishnu Adhyapak and Shalini
Spouse and Children: K D Kulkarni; one *s*, one *d*
Address: Indian Institute of Science Education and Research, Sai Trinity Building, Garwari Circle,
Pashan, Pune 411 021
Tel. (020) 2590 8392 (O), (020) 2544 1158 (R), Mobile: 98816 73854
email: s.kulkarni@iiserpune.ac.in; skk_surface@yahoo.com

Education: Univ. of Pune: BSc 69, MSc 71, PhD 76.

Career: Univ. of Pune: Demonstrator 72–75, Lecturer 75–88, Reader 88, UGC Sci. 88–93, Prof. 93–; IISER, Pune: Prof. 2009–.

Scientific Work: Has made significant contributions in the field of materials and surface science. Work on nanomaterials, hard coatings and aerogels is noteworthy. Has extensively worked in the field of surface science, specially in photoelectron diffraction as well as photoelectron spectroscopy of surfaces and interfaces. Has played a major role in the programmes of national interests like IUC-DAEF photoelectron spectroscopy beam line design now commissioned at INDUS-I, CAT Indore. Involved in the development of monochromators for neutron beam line of IUC-DAEF, Mumbai, to be installed at Dhruva reactor, BARC, Mumbai. Has established various facilities like metallic multilayer deposition, arc deposition, plasma polymerized film deposition, auger electron spectroscopy (AES), low energy electron diffraction (LEED), X-ray photoelectron spectroscopy (XPS), ultraviolet photoelectron spectroscopy (UPS), high resolution electron energy loss spectroscopy (HREELS), etc. techniques in the Department of Physics, University of Pune.

Memberships: Fellow: NASI 2003; Maharashtra Acad. of Sci.

Awards & Distinctions: DAAD Fellow 77–78 • JSPS Visiting Prof. 96.

Kumar, Gattamraju Ravindra

Elected: 2004
Position: Prof., TIFR, Mumbai
Specialization: Interaction of Intense Light with Matter; Nonlinear Optical Properties of Novel Materials
Date and Place of Birth: 15 June 1961; Anantapur, Andhra Pradesh
Parents: Gattamaraju Rama Rao and Lalitha
Spouse and Children: Madhavi; two *d* (Aashraya, Asmita)
Address: Department of Nuclear and Atomic Physics, Tata Institute of Fundamental Research,
Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2381 (O), (022) 2280 4609 (R)
email: grk@tifr.res.in; URL: http://www.tifr.res.in/~uphill

Education: BITS, Pilani: BE Hons 83, MSc Hons 83; IIT Kanpur: PhD 90.

Career: IIT Kanpur: Res. Assoc. 90–91; TIFR: Vis. Fellow 92–93, Fellow 93–97, Reader 97–2002, Assoc. Prof. 2002–06, Prof–.

Scientific Work: Areas of expertise are experimental nonlinear optics and studies of super-intense laser interaction with matter. At TIFR, established an internationally competitive, nationally-unique, interdisciplinary research programme in nonlinear optics with particular focus on the physics of matter in intense laser fields. Has made highly visible contributions to different aspects of the understanding of molecular behaviour in picosecond and femtosecond duration light pulses having field strengths of magnitude comparable to the fields inside matter. Notable amongst contributions have been the discovery of pendular motion of spatially-aligned molecules, control of molecular fragmentation patterns, a new method for estimating the X-ray luminosity of short-lived laser plasma sources and the study of novel optical materials with potential for technological applications.

Important Publications: **(1)** Laser generated multi-megagauss, ultrashort magnetic pulses in plasmas (2002) *Phys. Rev. Lett.* **89**, 225002. **(2)** Metal nanoplasmas as bright sources of hard X-rays (2003) *Phys. Rev. Lett.* **90**, 115002. **(3)** Plasma devices to guide and collimate a high density of MeV electrons (2004) *Nature* **432**, 1005. **(4)** Laser pulse induced second harmonic and hard X-ray emission: Role of plasma wave breaking (2005) *Phys. Rev. Lett.* **95**, 025005. **(5)** Near complete absorption of intense, ultrashort laser light by sub-λ gratings (2008) *Phys. Rev. Lett.* **101**, 145001.

Memberships: Fellow: INSA 2008.

Awards & Distinctions: B M Birla Prize 2000 • S S Bhatnagar Award 2003 • Salute Mumbai Award 2005 • Outstanding investigator Award, DAE Science Res. Council 2006–11.

Kumar, Har Darshan

Elected: 1975
Specialization: Algology; Microbial Biotechnology; Genetics; Ecology; Environment
Date and Place of Birth: 25 February 1934; Lahore, Pakistan
Parents: Prithmi Chand and Bharawan Rani
Spouse and Children: Krishna; two *d* (Enakshi, Swati)
Address: Mrigtrishna, B–32/32, H K 214, Saketnagar Colony, Naria, Varanasi 221 005, India
Tel. (0542) 231 5180 (R)
email: hdk71@yahoo.co.in, hdkumar@rediffmail.com

Education: BHU: BSc Hons 54, MSc 56; Univ. of London: PhD 63.

Career: Bihar Univ.: Lecturer 56–58; Gorakhpur Univ.: Asst Prof. 58–64; Udaipur Univ., Dept of Botany: Reader & Head of Dept 64–66, Prof. & Head of Dept 66–71, Sr. Prof. & Head of Dept 71–72; Himachal Pradesh Univ., Dn of Bio-Sci.: Sr Prof. of Botany and Head of Dn of Biosciences 72–73; BHU, Faculty of Science: Sr Prof. 73–94; Head of Botany Dept 78–80; Coordinator, Biotechnology Programme 89–92; Dean, Faculty of Science 88–90 ;and 92–94; Nara Women's Univ., Japan: Vis. Prof. 81–82. Philips Universitat, Germany: Vis. Prof. 83–84, 88; UGC National Fellow 91–92; Univ. of Wiscosin, USA: Vis. Prof. 98.

Scientific Work: Original contributions to diverse aspects of the biology of cyanobacteria genetics, mutagenesis and microalgae, e.g. nitrogen fixation, photobiological hydrogen production, effects of UV-B radiation, single-cell protein, freshwater phycology, role of algae in water pollution and eutrophication.

Important Publications: **(1)** Apparent genetic recombination in a blue-green alga (1962). *Nature* (London) **196**, 1121–22. **(2)** Effects of radiations on blue-green algae. I and II (1963–64). *Ann. Botany* (London) **27**, 723–33, **28**, 555–66. **(3)** Genetics of blue-green algae (1978) *Biol. Rev.* (Cambridge) **53**, 355–86. **(4)** Effects of quenching agents on the photodynamically-induced chemotactic response of the colourless flagellate *Polytomella megna* (1984) *Photochem. Photobiol.* **40**, 539–43. **(5)** Effects of solar UV radiation on aquatic ecosystems and interactions with climate change (2007) *Photochem Photobiol. Sci.* **6**, 267–285.

Memberships: Member: UNEP Panel on Effects of Ozone Depletion 89 • Fellow: NASI 85; INSA 88; New York Explorer's Club • President: International Soc. for Plants and Nature.

Awards & Distinctions: UNEP Citation of Excellence 89, 2002, 2006 • Editor, *J. Microbiol. Biotechnol.* 2003–.

Kumar, Ladapuram Srinivasa Sampath*

Elected: 1940
Specialization: Cytology; Genetics; Plant Breeding
Date and Place of Birth: 4 June 1903; Chellekerai, Karnataka
Parents: L S Varachachar and Chellamma
Spouse and Children: Kanthimathi; one *s*, two *d* (Vijay Shankar, Kaushalya, Sumitra)
Last Address: c/o Lt Col B S Ramdas, D-37, Marg 12, Saket, New Delhi 110 017, India
***Deceased:** 20 November 1985

Education: London Univ., UK: BSc Hons, MSc 27; Diploma in Associateship of the Royal College of Sci., Diploma of the Imperial College of Sc. & Technology.

Career: Intermediate College, Mysore, Dept of Botany: Asst Prof. 29–31; Agri. College, Poona, Dept of Botany: Asst Prof. 31–32, Economic Botanist to Govt and Prof. 32–48, Principal 48–58; ICAR, New Delhi: Chief of Agri. Edn 58–59, Addl Dir 59–63, Agri. Dir 61–63.

Scientific Work: Research work centred round the breeding of grasses for improved strains as well as on oil-seeds and pulses. Also worked on the induction of polyploidy in grains, crops, fruits, vegetables and flowering plants; determination of chromosome numbers and induction of polyploidy in grain crops, vegetables, fruits and flowering plants. Worked on sorghum, groundnut, pearl millet, linseed, sesamum, cotton and different pulses and the major aim of all the cytological and cytogenetic investigations was to solve field problems such as diseases and sterility of pests, infection with Striga and different forms of root parasitism. Recorded for the first time the chromosome numbers of several plant species. Carried out a detailed study of the sex chromosomes in *Coccinia indica*, work on the cytology of *Striga* still remains a classic was deeply interestsed in fodder grass improvement.

Important Publications: **(1)** Cytological study of sterility in *S. orientale* (1941) *Indian J. Genet. Plant Breeding* **1**, 41–60. **(2)** Cytological studies in Indian parasitic plants. I. The cytology of *Striga* (1941) *Proc. Indian Acad. Sci.* **B14**, 509–516.

Memberships: Fellow: INSA 54; Indian Soc. of Genetics and Plant Breeding; NASI.

Kumar, Makarla Udaya

Elected: 2004
Position: Prof. and Head, Crop Physiology, UAS, Bangalore
Specialization: Molecular Basis of Stress Resistance; Physiology of Water Use Efficiency in Plants; Canopy Photosynthesis
Date and Place of Birth: 15 September 1946; Machilipatnam, Andhra Pradesh
Parents: M Cholapathi Rao and M Akhilandamma
Spouse and Children: R Neeraja; one *d*
Address: Department of Crop Physiology, University of Agricultural Sciences,
GKVK Campus, Bangalore 560 065, India
Tel. (080) 2363 6713, 2333 0153/376 (O), (080) 2347 4560 (R), Mobile: 94483 76357
email: udayakumar_m@yahoo.com, udayakumar_m@uasblr.kar.nic.in

Education: Moscow Univ.: MSc 68; Acad. of Sci. USSR: PhD 71.

Career: UAS: Pool Offr 71–72, Jr Plant Physiologist 72–74, Plant Physiologist 74–83, Prof. and Head of Crop Physiology 83–date, Head, Plant and Soil Sci. 97–.

Scientific Work: Major research interest has been in the area of plant stress physiology and is motivated by the fact that actually in India, abiotic stresses account for nearly 30 to 70 per cent loss in crop productivity. Has contributed significantly to understanding of the physiology and molecular aspects of water use efficiency (WUE) in plants and has for the first time developed a dual isotope technique to screen crop plants for higher WUE. Using molecular probes, identified genes responsible for WUE in plants and now plans to develop QTLs for molecular breeding for high WUE in plants. Using a novel induction response technique, the group has pioneered approaches to identifying stress responsive genes in plants for resistance to abiotic stresses. A number of stress responsive genes have already been cloned in groundnut, finger millet and in sunflower. Currently, mining genes from plant species adapted to extreme stress environments and exploring the relevance of such genes using novel virus induced gene silencing approaches.

Memberships: Fellow: INSA 2006; Intl. Soc. for Plant Molecular Biol.; Indian Soc. of Plant Physiology; NAAS.

Awards & Distinctions: R D Asana Medal 80 • NRDC Invention Award 84 • Rotary Gold Medal for Distinguished Scientific Contribution 94 • ICAR Best Teacher Award 97 • ITC Best Scientist Award.

Kumar, Narendra

Elected: 1983
Position: Homi Bhabha Distinguished Sci., RRI, Bangalore
Specialization: Condensed Matter Physics; Stochastic Transport Processes and Statistical Physics; High-Temperature Superconductivity; Localization in Disordered Systems
Date and Place of Birth: 1 February 1940; Bilaspur, Madhya Pradesh
Parents: Labha Mal Julka and Taravathi
Spouse and Children: Ann; two *d* (Revati, Rohini); two *s*
Address: Raman Research Institute, CV Raman Avenue, Bangalore 560 080, India
Tel. (080) 2361 1016 (O), (080) 2341 0549 (R), Mobile: 94484 95421
email: nkumar@rri.res.in; URL: http://www.rri.res.in/~nkumar

Education: IIT, Kharagpur: BTech Hons 62, M Tech 63; IIT, Bombay: PhD 71; British Columbia Univ., Canada: Postdoc 70.

Career: Inst. of Armament Technol., Pune: SSO 63–65; NCL, Pune: Sci. B 65–68; IISc, Dept of Physics: Asst Prof. 71–75, Prof. 75– and Prof.–, Chmn of Dept of Phys., Chmn, Div. of Physical and Mathematical Sci., 70–94 , MSIL Endowment Chair 90–93; Jawaharlal Nehru Centre for Advanced Scientific Res., Bangalore: Hon Prof. 89; RRI, Bangalore: Vis. Prof. 89–94, Dir 94–2005, DAE Homi Bhabha Distinguished Sci. 2005–.

Scientific Work: Developed a theory of conductance fluctuations and localization in disordered conductors based on invariant imbedding, and on maximum entropy principle. Other contributions include a theory of time-dependent specific heat and ultra-short heat pulse propagation in glassy dielectrics; normal state transport and decoherence in high-T_c superconductors; and magnetic string theory of d-wave pairing in high-T_c superconductors. Proposed and developed the idea of localization of light in random amplifying medium and Anderson laser with mirrorless confinement by localization.

Important Publications: **(1)** *Quantum transport in mesoscopic systems: complexity and statistical fluctuations* (2004) Oxford Univ. Press. **(2)** A macroscopic approach to resistance fluctuation in disordered wires (1988) *Ann Phys.* **181**, 290. **(3)** Resistance fluctuation in a one-dimensional conductor with static disorder (1985) *Phys. Rev.* **B31**, 5513; **(4)** Temperature dependence of c-axis resistivity of high-T_c layered oxides (1992) *Phys. Rev.* **B45**, 5001. **(5)** Non-diffusive quantum transport in a dynamically disordered medium (1982) *Phys. Rev. Lett.* **48**, 553.

Memberships: Fellow: INSA 87; NASI 94; TWAS 94 • Member: Inst of Phys. UK; Am. Phys. Soc.; Indian Phys. Assn.

Awards & Distinctions: S S Bhatnagar Prize 85 • Hari Om Ashram Medal 85–86 • TWAS Prize in Physics 92 • Distinguished Alumnus Award 96 IIT Bombay • Mahendra Lal Sircar Prize in Phys. 97 • Goyal Award in Phys. 98 • FICCI Award for Physical Sciences 88–89 • CV Raman Birth Cent. Award 99–2000 • Meghnad Saha Medal 2000 • MRSI Distinguished Material Scientist of Year 2006 Award • R D Birla Award for Excellence in Phys. 2006 Indian Physics Assn.

Kumar, Rajinder

Elected: 1979
Position: Hon. Prof., JNCASR, Bangalore
Specialization: Multiphase Phenomena
Date and Place of Birth: 9 September 1934; Ballan, Punjab
Parents: Munshi Ram and Vidya Vati
Spouse and Children: Andal; one *s*, one *d*
Address: Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2786, 2293 2320 (O), (080) 2334 6394 (R), Mobile: 98452 50473
email: kumar@chemeng.iisc.ernet.in

Education: Punjab Univ.: BSc Hons 54, MSc 55, PhD 65.

Career: IISc, Bangalore, Dept of Chemical Engineering: Sr Res. Asst 62–63, Lecturer 63–67, Asst Prof. 67–70, Prof. 70–95; Jawaharlal Nehru Centre for Advanced Sci. Res., Jakkur, Bangalore: Hon. Prof. 95–.

Scientific Work: Significant work on analysis of multiphase systems. Developed a two-stage model for fluid dispersion from a single submerged nozzle, which not only quantitatively explained all existing discrepancies, but also treated both bubble and drop formation through a single set of equations. Developed the first structural model for a foam bed reactor and then generalized it for complex situations. Jointly proposed two alternative mechanisms for drop breakage in turbulent stirred dispersions and a new model for breakage frequency. Jointly proposed a quantitative description for a batch sonochemical reactor involving a homogeneous reaction.

Important Publications: **(1)** A unified approach to bubble and drop formation (1971) *Chem. Eng. Sci.* **26**, 177–184. **(2)** Mass transfer with chemical reaction in a foam bed (1981) *Chem. Eng. Sci.* **36**, 9, 1547–1556. **(3)** General model of a foam bed reactor (1990) *Chem. Eng. Sci.* **45**, 5, 1151–59. **(4)** Alternative mechanisms of drop breakage in stirred vessels (1991) *Chem. Eng. Sci.* **46**, 10, 2483–89. **(5)** Modelling of a batch sonochemical reactor (1994) *Chem. Engg Sci.* **49**, 6, 877–888.

Memberships: Member: Indian Institute of Chemical Engineers • Fellow: INAE 87; INSA 95.

Awards & Distinctions: S S Bhatnagar Prize 76 • Indian Institute of Chemical Engg Herdilia Award 85 • Vasvik Award 86 • Om Prakash Bhasin Award 91 • FICCI Award 94 • Padma Bhushan 2003 • IICHE Lifetime Achievement Award 2008.

Kumara Swamy, Kalasa Chandrasekhar Jois

Elected: 2002
Position: Prof., Univ. of Hyderabad
Specialization: Chemistry of Main Group Elements; Organophosphorus Chemistry
Date and Place of Birth: 1 January 1957; Kalasa, Karnataka
Parents: K G Chandra Sekhar Jois and K C Nagaratnamma
Spouse and Children: Sudha; two *d*
Address: School of Chemistry, University of Hyderabad, Hyderabad 500 046, India
Tel. (040) 2313 4856 (O), (040) 6457 6973 (R)
email: kckssc@uohyd.ernet.in

Education: Mysore Univ: BSc 77, MSc 79; IISc: PhD 84.

Career: IISc: Res. Assoc. 84–86, Sr Sci. Offr 86; Univ. of Massachusetts, USA: Postdoc Fellow 86–89; Univ. of Hyderabad: Lecturer, Reader, Prof. 89–.

Scientific Work: Has made original and innovative contributions to main group chemistry, in particular to phosphorus chemistry. Based on carefully chosen systems, has shown that the generally accepted tenets for the site preferences in the chemically and biochemically important pentacoordinate phosphorus compounds do not hold for several common systems. Has demonstrated the inadequacies of apicophilicity rules given in standard text books. Establishing the identity of the proposed intermediates in the synthetically useful Mitsunobu and phosphine catalysed reactions is another major contribution. Some key observations on hydrogen bonding involving organophosphates and imidazole/nucleobases have been made; these have implications on the role of imidazolyl residues in RNA hydrolysis/cyclization. Current work focusses on transition metal catalysed coupling reactions of allenylphosphonates and nucleobase appended organophosphonates that may show a variety of biological activities. Has demonstrated the synthetic utility of the organophosphonate reagents.

Memberships: Alexander von Humboldt Fellow.

Kumaran, Viswanathan

Elected: 1999
Position: Prof., Dept of Chemical Engg, IISc, Bangalore
Specialization: Hydrodynamic Stability; Dynamics of Complex Fluids; Granular Flows
Date and Place of Birth: 17 June 1966; Chennai, Tamil Nadu
Parents: R Viswanathan and Sugunavati
Spouse and Children: Nandini; one *d* (Radha)
Address: Department of Chemical Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 3112 (O), (080) 2360 1034 (R)
email: kumaran@chemeng.iisc.ernet.in

Education: IIT Madras: BTech 87; Cornell Univ.: PhD 92.

Career: Univ. of California: Postdoc Engineer 91–93; IISc: Asst Prof. 93–.

Scientific Work: Has made outstanding contributions in the areas of hydrodynamic stability in flexible channels and tubes, kinetic theories of granular materials, and in the dynamics of phase transitions in simple and complex fluids. In the area of hydrodynamic stability has discovered that the laminar to turbulent transition in flexible channels takes place due to a mechanism that is qualitatively different from that in rigid tubes and channels, and the transition could take place at significantly lower velocities. In the area of granular flows, has obtained, for the first time, kinetic theory descriptions for inelastic granular materials in cases where the distribution function is very different from the 'equilibrium' distribution for conservative gases. has also shown that the mechanism of phase transition in fluids could be very different from that in solid alloys due to the presence of convective transport in fluids, and has derived scaling laws for the rate of domain growth in the presence of convection.

Memberships: Fellow: INAE 2006.

Awards & Distinctions: IASc Assoc. 95–2000 • INSA Young Scientist Medal 96 • Young Engineer Award 97.

Kumaraswamy, Ponnambalam*

Elected: 1972
Specialization: Hydraulics; Hydrology; Irrigation Engineering
Date of Birth: 4 October 1930
Last Address: Centre for Water Resources Development & Management
Kunnamangalam 673 571, Kerala, India
***Deceased:** 9 March 1988

Education: Madras Univ.: BE 51; MIT, USA: Fellow 68.

Career: Irrigation Res. Station, Poondi: Asst Engineer 51–56, Asst Res. Offr 56–57; Asst. Executive Engineer-in-Charge 57–61, Boiler Plant Project: Executive Engineer 61–63, Executive Engineer, Harbour Project 63–65; Irrigation Res.

Station, Poondi: Res. Offr and Executive Engineer 65–70, Dir 70–75; Inst. of Hydraulics and Hydrology, Poondi: Dir 75–80; Centre for Water Resources Development and Management, Kozhikode: Executive Dir 80–88.

Scientific Work: Computer simulation of water resources development and management. Discovered a new pumping technique for deriving parameters of aquifers for their electronic simulation. Developed entirely new mathematical models of wells in hard rock regions, both for laminar and turbulent flow regimes. Developed a new probability density functions for use in computer simulation of hydrological stochastic processes. Discovered the concept of double-bounded probability density function.

Awards & Distinctions: Homi Bhabha Fellowship 67–69 • Jawaharlal Nehru Fellowship 75–77.

Kundu, Dhirendra Nath*

Elected: 1975
Specialization: Nuclear Physics; Spectroscopy
Date and Place of Birth: 4 January 1916; Basirhat, West Bengal
Parents: Kshetra Nath Kundu and Nalini Sundari
Spouse and Children: Pusparani; two *s* (Prasun Kumar, Sourav Kumar)
Last Address: P-66, C I T Scheme, VI-M, Calcutta 700 054, India
***Deceased:** 11 December 1999

Education: Univ. of Calcutta: BSc Hons 37, MSc 40; Ohio State Univ., Ohio: PhD 50.

Career: Univ. of Calcutta, Dept of Phys: Res. Scholar, Asst Cyclotron Offr, Ghosh Travelling Fellow, 40–45; BSIR, Govt of India: Sr Scholar 44; Watmull Foundation Fellow, Los Angeles, California 45; Ohio State Univ.: Univ. Scholar, Univ. Fellow 46–47; NIH, Bethesda, USA: Res. Fellow 48; Natl Advisory Comm. for Aeronautics, USA: Res. Fellow 49; Dept of Phys.: Technical Asst.; Development of Fund Project: Res. Assoc.; US Air Force Project: Res. Assoc. Ohio Univ. 49–54; The Ohio State Univ.: Asst Prof. of Phys. 54–55; Natl Acad. of Sci., USA – Natl Res. Council, Washington DC, Nuclear Phys. Group: Professional Assoc. 55–57; Saha Inst. of Physics, Calcutta: Prof. and Head of the Accelerator Dn 58–66, Sr Prof. 66–80, Dir 67–80.

Scientific Work: Initiated cyclotron irradiations with triton and He^{3} as bombarding particles, and investigated several new types of nuclear reactions like (*t*, *p*), (*t*, He^{4}), (He^{3}, *t*), etc., where reactions took place from outside the nucleus without potential barrier penetration by the Oppenheimer–Phillips process, *n-p* interchange and other interesting mechanisms. By (*t*, *p*) reactions, two neutrons were easily introduced into target nuclei and evidence was obtained for the probable existence of a dineutron which is recently being proposed by others as a constituent in the structure of the highly neutron-rich Li^{11}. Work on nuclear transmutations led to discovery and mass assignments of many new radio isotopes and disintegration modes of several others. The first experimental evidence of the only known example of nuclear core isomerism was obtained in Mo^{-93}. Solar coronal line lambda 4359.0 was spectroscopically assigned to highly ionized Co^{+14} atoms.

Important Publications: **(1)** Introduction of two neutrons into nuclei under H^{3} bombardment (1948) *Phys. Rev.* **73**, 1220. **(2)** Columbium 90, 96 and molybdenum 91, 93 (1949) *Phys. Rev.* **76**, 183. **(3)** Bombardment of Cu and Ag with tritons (1951) *Phys. Rev.* **82**, 305. **(4)** Collective model in the analysis of gamma rays (1954) *Phys. Rev.* **96**, 817. **(5)** *Chart of atomic nuclei* (1955) Longs College Books, Columbus, Ohio.

Memberships: Fellow: INSA 61; Am. Phys. Soc. • President: Indian Phys. Soc.

Awards & Distinctions: Meghnad Saha Memorial Gold Medal,

Kundu, Gopal Chandra

Elected: 2006
Position: Sci., NCCS, Pune
Specialization: Signal Transduction; Cancer Biology; Angiogenesis; Regulation of Gene Expression
Date and Place of Birth: 2 November 1959; Bataspur, West Bengal
Parents: Bishnu Pada Kundu and Lakshmi Bala
Spouse and Children: Elora; one *s*, one *d* (Gautam, Ipsita)
Address: National Centre for Cell Science, NCCS Complex, Pune 411 007, India
Tel. (020) 2570 8103 (O), (020) 2569 8547 (R), Mobile: 94225 06548
email: kundu@nccs.res.in; gopalkundu@hotmail.com

Education: Calcutta Univ: BSc 80, MSc 82, PhD 89.

Career: Cleveland Clinic Foundation, USA: Postdoc Fellow 88–90; Univ. of Colorado, USA: Res. Assoc. 90–92; Univ. of Wyoming, USA: Sr Res. Assoc. 92–93, NIH, USA: IRTA Fellow 93–98; NCCS, Pune: Sci. 98–.

Scientific Work: Has made significant contribution by deciphering the molecular mechanism by which osteopontin (OPN), a chemokine-like, ECM-associated protein plays crucial role in determining the metastatic potential of various cancers including melanoma, breast and prostate. Has elucidated the pivotal role of OPN in regulating the signalling pathways that controls melanoma, breast and prostate tumour progression, angiogenesis and metastasis. Has demonstrated that OPN induces alpha v beta 3 integrin-mediated NF-kB/AP-1 dependent uPA/MMP-2/-9/COX-2 expressions through PI 3-kinase/PKC/NIK/ERK/MEKK signalling pathways and all these molecules ultimately control the tumour growth, angiogenesis and metastasis in mice models. Has recently demonstrated that exogenous and tumour-derived OPN triggers VEGF dependent tumour progression and angiogenesis by activating Brk/NIK/NF-kB/ATF-4 signalling cascades through autocrine and paracrine mechanisms. Analysis of human melanoma, breast and prostate cancer specimens indicated that elevated expressions of OPN and associated molecules directly correlate with enhanced malignancy that further support the *in vitro* and *in vivo* data. Has also delineated how hypoxia that generates reactive oxygen species (ROS) regulates the cross-talk between Syk and Lck (non-receptor protein tyrosine kinase) leading to breast cancer progression and angiogenesis. Thus, targeting OPN and its regulated signalling network could be a novel strategy to block tumour growth and angiogenesis and may develop an effective therapeutic approach for the management of cancer.

Important Publications: **(1)** Osteopontin stimulates tumor growth and activation of promatrix metalloproteinase-2 through nuclear factor-κB-mediated induction of membrane type 1 matrix metalloproteinase in murine melanoma cells (2001) *J. Biol. Chem.* **276**, 48, 44926–44935. **(2)** Syk, a protein-tyrosine kinase, suppresses the cell motility and nuclear factor κB-mediated secretion of urokinase type plasminogen activator by inhibiting the phosphatidylinositol 3′-kinsse activity in breast cancer cells (2003) *J. Biol. Chem.* **278**, 8, 6209–6221. **(3)** Osteopontin: role in cell signalling and cancer progression (2006) *Trends Cell Biol.* **16**, 2, 79–87. **(4)** The crucial role of cyclooxygenase-2 in osteopontin-induced protein kinase C α/c-Src/IκB kinase α/β–dependent prostate tumour progression and angiogenesis (2006) *Cancer Res.* **66**, 6638–6648. **(5)** Osteopontin promotes vascular endothelial growth factor-dependent breast tumour growth and angiogenesis via autocrine and paracrine mechanisms (2008) *Cancer Res.* **68**, 152.

Memberships: Fellow: Maharashtra Acad. of Sci.; NASI 2003.

Awards & Distinctions: National BioScience Award 2003, New Delhi • S S Bhatnagar Prize 2004.

Kundu, Tapas Kumar

Elected: 2008
Position: Assoc. Prof., Transcription & Disease Lab., JNCASR, Bangalore
Specialization: Mechanisms of Transciptional Regulation; Nonhistone Chromatin Proteins in Genomic Integrity; Chemical Biology
Date and Place of Birth: 2 January 1962; Hili, West Bengal
Parents: Kalachand Kundu and Dipali
Spouse and Children: Soma; one *d*
Address: Transcription & Disease Laboratory, Molecular Biology & Genetics Unit,
Jawaharlal Nehru Centre for Advanced Scientific, Research, Jakkur, Bangalore 560 064, India
Tel. (080) 2208 2840 (O), (080) 2362 2773 (R)
email: tapas@jncasr.ac.in

Education: Bidhan Chandru Agri. Univ.: BSc 86; UAS, Bangalore: MSc 89; IISc: PhD 95.

Career: National Inst. of Genetics, Japan: Vis. Foreign Res. Assoc. 95–96; The Rockfeller Univ., USA: Postdoc 96–99; JNCASR: Asst Prof. 99–2004, Assoc. Prof. 2004–.

Scientific Work: The group focusses on the regulation of gene expression (transcription) in humans from chromatin template with special emphasis on diseases. Small molecule modulator (both inhibitors and activators) of histone modifying enzymes [acetyltransferases, methyltransferases, and kinases (Aurora Kinase A and B)], which would be highly useful to understand the molecular function of the enzymes and may serve as lead compounds for therapeutics have been studied. These compounds are being isolated from natural sources, derivatised and characterized by different biochemical, cellular, biophysical and nanotechnology based assays. Also studied epigenetic alteration of chromatin dynamics regulated by nonhistone chromatin proteins and its link to gene expression. This topic also includes the epigenetic modifications and diseases (cancer, AIDS and diabetes). Studied human histone chaperones in chromatin transcription regulation and stress response; regulation of p53 function by nonhistone chromatin proteins, HMGB1 and PC4; functional genomics of human transcriptional coactivators and histone deacetylases with a special reference to cancer. Also extended area of research in the field of nanotechnology. By employing silver/silver-gold nanoparticle and Raman spectroscopy, reported the surface-enhanced Raman scattering studies of histone acetyltransferase (HAT) p300 and its mode of interactions with different small molecule modulators of the HAT. This work may provide an ideal tool to study the drug-protein interactions in therapeutics using SERS.

Memberships: Fellow: NASI 2005.

Awards & Distinctions: IISc Giri Memorial Award 95 • DBT Natl Bioscience Award 2005 • S S Bhatnagar Prize 2005.

Kuriyan, Kuruvilla Ittyarah*

Elected: 1943
Specialization: Chemistry of Natural Products
Date and Place of Birth: 4 October 1903; Kottayam, Kerala
Parents: John Kuriyan and Mary
Spouse and Children: Kunjumariamma; two *s*, two *d*
Last Address: Saint Mary's College, Sultan Battery, Kerala, India
***Deceased:** 16 August 1972

Education: Univ. of Madras: BSc 26; Agra Univ.: MSc 29; Univ. of London: PhD 32.

Career: U C College, Alwaye, Dept of Chem.: Prof. 29–30; Parameswara College, Ceylon: 33–35; Wesleyan College, Ceylon: 35–41; Annamalai Univ., Dept of Chem.: Prof. 42-47; Trinity College, Kandy, Ceylon: 47–48; Univ. of Rangoon, Burma: 48–49; Sree Narayana College, Quilon, Dept of Chem.: Prof. 49–65; St Mary's College, Sultan Battery: Principal 66–67.

Scientific Work: Contributed to work on the chemistry of natural products such as resins, acids, etc. in the rind of fruits found in Kerala. Also studied the medicinal properties of the root of rose, periwinkle, etc.

Memberships: Fellow: Royal Inst. of Chemistry.

Kutumbiah, Pandipeddi*

Elected: 1941
Specialization: Neurology; Cardiology; Clinical Medicine
Date and Place of Birth: 22 November 1892; Nellore, Madras Presidency
Parents: Pandipeddi Adinarayaniah and Janakiamma
Last Address: 28, Hall's Road, Egmore, Madras 600 008, India
***Deceased:** 1976

Education: Madras Univ.: BA 13, MBBS 18, MD 31; Royal Coll. of Physicians: MRCP 30.

Career: Indian Medical Service: Captain 18–23; Medical School, Vishakapatnam: Lecturer 23–27; General Hospital, Madras: Medical Registrar 30–31; Andhra Medical College: Lecturer 31–38, Prof. of Medicine 38–45, Stanley Medical College, Madras: Prof. of Medicine and Principal 45–48; Christian Medical College, Vellore: Prof of Medicine and Head 48–50, Principal 50.

Scientific Work: Keen and pioneering interest in rheumatic heart disease in Indian patients.

Memberships: Fellow: Royal Soc. of Tropical Medicine and Hygiene; London Dermatological Soc.

Laddha, Ganesh Shrikrishna

Elected: 1974
Position: Prof. Emer., AC College of Technol., Madras.
Specialization: Chemical Engineering; Chemical Technology
Date and Place of Birth: 26 August 1922; Kakada, Maharashtra
Parents: Shrikrishna Laddha and Narayanidevi
Spouse and Children: Sumitra; one *d*
Address: 4th Floor, KGR Govardhan, New No. 37 (old no. 17), Besant Avenue, Adyar, Chennai 600 020, India
Tel. (044) 2446 8862 (R)
email: laddhags@gmail.com

Education: Nagpur Univ.: BSc 42, BSc Tech 44: Purdue Univ., USA: MS 47, PhD 49.

Career: A C College of Technol., Madras: Reader in Chemical Engg 50, Dir 57–83, Prof. Emeritus 83–.

Scientific Work: Work related to liquid-liquid extraction in packed towers; mean drop size and characteristic velocity of droplet swarm in spray columns; dissolution of solids with chemical reaction; estimation of interfacial areas and mass transfer coefficients in packed absorption columns; estimation of effective thermal conductivity for heat transfer in packed beds. Kinetic studies of catalytic conversions; interesterification of vegetable fats; fractionation and deacidification of sal, mango and ricebran oils; industrial modelling for forecasting the performance of chemical and related industries.

Important Publications: **(1)** *Transport phenomena in liquid extraction* (1976) Mc Graw Hill. **(2)** *Transport properties of liquid mixtures* (1984) Curriculum Development Centre, Ministry of Education and Cultural Affairs, New Delhi.

Memberships: Fellow: INAE 91.

Awards & Distinctions: Ambrose Congreve Award 80 • H J Bhabha Award 80 • UGC Natl Lecturer 83–84.

Lahiri, Goutam Kumar

Elected: 2005
Position: Prof., IIT Bombay
Specialization: Inorganic Chemistry; Organometallic Chemistry; Catalysis
Date and Place of Birth: 1 January 1960; Chinsurah, West Bengal
Parents: Anil Nath Lahiri and Sipra
Spouse and Children: Paramita; one *s* (Aritra)
Address: Department of Chemistry, Indian Institute of Technology, Powai, Mumbai 400 076, India
Tel. (022) 2576 7159 (O), (022) 2576 8159 (R), Mobile: 98195 81787
email: lahiri@chem.iitb.ac.in

Education: Burdwan Univ.: BSc 81, MSc 84; Jadavpur Univ.: PhD 90.

Career: West Virginia Univ., USA : Postdoc 90–93; IIT Bombay: Asst Prof. 93–97, Assoc. Prof. 97–2001, Prof. 2001–; Vis. Prof.: Bristol Univ., UK; Stuttgart Univ., Germany.

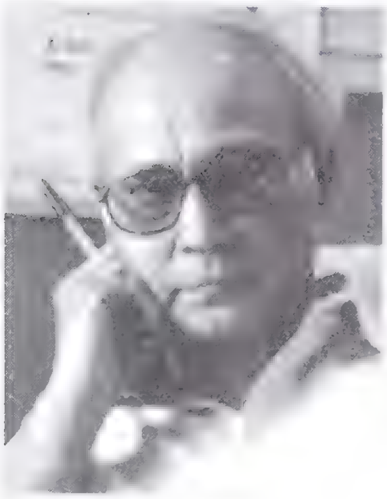
Scientific Work: The fundamental aspects of intramolecular electron-transfer processes at the mixed-valent state of the bridged polynuclear species have been investigated which extend the understanding of redox active biological processes and molecular electronic devices. The delicate valence and spin state interactions in ruthenium-quinonoid frameworks have been established in understanding the electron transfer processes of metallo-quinoproteins. Facile methodologies have been developed towards the designing of reactive Ru-nitrosyls which can function as alternate NO donor under biological conditions. Newer classes of supported metal cluster based asymmetric nanocatalysts have been developed for efficient enantioselective processes. Water soluble nanocatalysts have been designed for efficient green hydrogenation or oxygenation processes.

Important Publications: **(1)** Intramolecular valence and spin interaction in meso and rac diastereomers of a p-quinonoid-bridged diruthenium complex (2008) *J. Am. Chem. Soc.* **130**, 17575. **(2)** Valence-state analysis through spectroelectrochemistry in a series of quinonoid-bridged diruthenium complexes $[(\mathrm{acac})_2\mathrm{Ru}(\mu\text{-L})\mathrm{Ru}(\mathrm{acac})_2]^n$ (n = +2, +1, 0, −1, −2) (2008) *Chem. Eur. J.* **14**, 10816. **(3)** Mixed-valent metals bridged by a radical ligand: Fact, or fiction based on structure-oxidation state correlations (2008) *J. Am. Chem. Soc.* **130**, 3532. **(4)** Unconventional mixed-valent complexes of ruthenium and osmium (2007) *Angew. Chem. Int. Ed.* **46**, 1778. **(5)** Superior performance of a nanostructured platinum catalyst in water: Hydrogenations of alkenes, aldehydes and nitroaromatics (2007) *Adv. Synth. Catal.* **349**, 1955.

Memberships: Fellow: Maharashtra Acad. of Sc. 2001; Chemical Research Soc. of India; American Chemical Soc.

Awards & Distinctions: B M Birla Award in Chemistry 96 • Royal Soc. Award for International Authors 2000 • Mercator Guest Prof., Germany 2007–08 • Ramanna Fellowship, DST 2007.

Lahiri Majumder, Arunendra Nath



Elected: 2005
Position: Sr Prof., Bose Inst., Kolkata
Specialization: Plant Biochemistry; Molecular Biology
Date and Place of Birth: 1 March 1946; Jorhat, Assam
Parents: Birendra Nath Lahiri Majumder; Sita Minakshmi Devi
Spouse: Asima
Address: Plant Molecular & Cellular Genetics, Bose Institute, P-1/12, CIT Scheme, VII M, Kolkata 700 054, India
Tel. (033) 2569 3232 (O), (033) 2436 7219 (R), Mobile: 94330 27050
email: lahiri@bic.boseinst.ernet.in, alahirimajumder@yahoo.com

Education: Calcutta Univ.: BSc 66, MSc 68, PhD 73, DSc 85.

Career: Visva Bharati Univ., Santiniketan: Lecturer 72–73, 77–85, Reader 85–88, Prof. 88–91; NIH, USA: Vis. Assoc. 73–76; Bose Inst., Kolkata: Prof. 91–2005; Sr Prof. 2005–.

Scientific Work: Major contribution is in the area of biochemistry and molecular biology of inositol metabolism in plants, the evolution of the L-myo-inositol 1-phosphate synthase protein/gene across divergent phyla, and stress regulation of the inositol metabolic pathway in plants.

Important Publications: **(1)** A novel salt-tolerant L-myo-inositol 1-phosphate synthase from *Porteresia coarctata* (Roxb.) Tateoka, a halophytic wild rice: Molecular cloning, bacterial overexpression, characterization and functional introgression into tobacco conferring salt-tolerant phenotype (2004) *J. Biol. Chem.* **279**, 28539–28552. **(2)** An insight into the molecular basis of salt-tolerance of L-myo-inositol 1-phosphate synthase ($PCINO_1$) from *Porteresia coarctata* (Roxb.) Tateoka, a halophytic wild rice (2006) *Plant Physiol.* **140**, 1279–1296. **(3)** Evolutionary divergence of L-myo-inositol 1-phosphate synthase: Significance of a core catalytic structure (2006) *Biology of inositols and phosphoinositides*, Springer **13**, 313–340. **(4)** Functional identification of sll1383 from *Synechocystis sp* PCC 6803 as L-myo-inositol 1-phosphate phosphatase (EC 3.1.3.25): Molecular cloning, expression and characterization (2007) *Planta* **225**, 1547–1558. **(5)** Inositol methyl transferase from a wild halophytic rice, *Porteresia coarctata* Roxb (Tateoka): Regulation of pinitol synthesis under abiotic stress (2008) *Plant, Cell and Environment* **31**, 1442–1459.

Memberships: Fellow: NASI 96; INSA 2005.

Awards & Distinctions: S B Saksena Medal INSA 2008 • Shadakshraswamy Award, SBC • Parija Memorial Lecture Award, Utkal Univ. • Career Development Award, UGC • Rockefeller Biotechnology Career Award • Foundation Day Award, Bose Institute.

Lakhanpal, Rajendra Nath

Elected: 1976
Specialization: Cenophytic Palaeobotany; Palynology
Date and Place of Birth: 5 August 1923; Sowaddi, Ludhiana, Punjab
Parents: Shanker Lall
Spouse and Children: Indra; two children
Address: B-21, Sector A, Mahanagar, Lucknow 226 006, India
Tel. (0522) 232 6134 (R)

Education: Lucknow Univ.: MSc 44, PhD 53.

Career: Burmah Oil Company: Res. Fellow 45–47, Sr Res. Asst 47–49; Birbal Sahni Inst. of Palaeobotany, Lucknow: Lecturer 49–54, Reader 54–60, Asst Dir 60–74, Dy Dir 74–81, Distinguished Sci. 81–84, Emeritus Sci. 84–88.

Scientific Work: Showed that the Indian tertiary floras can be divided into palaeogene and neogene subgroups; that water is the main factor controlling plant distribution in the tropics; and that the temperate element entered the Himalayan flora during the Miocene.

Memberships: Fellow: NASI 57; INSA 79; Indian Botanical Soc.; Palaeobotanical Soc.

Awards & Distinctions: Birbal Sahni Medal 91.

Lakhotia, Subhash Chandra

Elected: 1994
Position: Prof. of Zoology & Dean, Faculty of Sci., BHU, Varanasi
Specialization: Cytogenetics; Gene Expression; Molecular Biology; Stress Biology
Date and Place of Birth: 4 October 1945; Churu, Rajasthan
Parents: D P Lakhotia and Suryakala
Spouse and Children: Sarita; one s, one *d* (Siddharth, Smita)
Address: Department of Zoology, Banaras Hindu University, Varanasi 221 005, India
Tel. (0542) 236 8145, (0542) 670 1827 (O), (0542) 231 2012 (R), Mobile: 94530 48657
email: lakhotia@bhu.ac.in, sclakhotia@yahoo.co.in

Education: Calcutta Univ.: BSc Hons 64, MSc 66, PhD 70; Delhi Univ., UK Inst. of Animal Genetics, Massachussets Inst. of Technol., USA: Postdoc 71, 72, 85.

Career: Burdwan Univ.: Lecturer 71–72; Gujarat Univ.: Lecturer 72–76; BHU, Varanasi: Reader 76–85; Prof. of Zoology 85–; Univ. of California, USA, Dept of Molecular Biology and Biochem.: Vis. Sci. 84; and MIT, Dept of Biology, USA: Vis. Sci. 85.

Scientific Work: Demonstrated cellular autonomy of hyperactivity of X-chromosome in male; transcription of heterochromatin and existence of two classes of active replicons in the same cell type of *Drosophila*; elucidated the temporal order of replication of specific chromosome regions in different polytene cell types; discovered an unusual heat shock gene (the *93D* or *hsrω* locus) whose non-coding large nuclear transcripts organize the omega speckles which regulate hnRNPs and certain other RNA-binding proteins; discovered novel heat shock response in malpighian tubules of *Drosophila* and the first to identify HSP60 family protein in *Drosophila* with some members of this chaperonine family being involved in normal developmental functions.

Memberships: Fellow: INSA 93; NASI 2002.

Awards & Distinctions: INSA Medal for Young Scientists 79 • UGC Career Award in Sciences 79 • Fulbright Senior Scholar Grant, USA 84–85 • S S Bhatnagar Prize 89 • UGC JC Bose Award • Hari Om Ashram Trust 97 • INSA S L Hora Medal 2002 • BHU Prof. CNR Rao Education Foundation Award 2007.

Lakshmanan, Muthusamy

Elected: 1991
Position: Prof. of Eminence & DST Raja Ramanna Fellow, Bharathidasan Univ., Tiruchirapalli
Specialization: Nonlinear Dynamics; Theoretical Physics; Mathematical Physics
Date and Place of Birth: 25 March 1946; Kuruva Goundom Palayam, Tamil Nadu
Parents: M Muthusamy Gounder and Sivakami
Spouse and Children: Leelamani; one *s*, one *d*
Address: Centre for Nonlinear Dynamics and, Department of Physics,
Bharathidasan University, Tiruchirapalli 620 024, India
Tel. (0431) 240 7093, (0431) 240 7057 (O), (0431) 245 9386 (R), Mobile: 99408 23079
email: lakshman.cnld@gmail.com, lakshman@cnld.bdu.ac.in

Education: Univ. of Madras: BSc 66, MSc 69, Post-MSc Dipl. 70, PhD 74; Univ. of Tubingen, Germany and Eindhoven Univ. of Tech., Holland: Postdoc Res. 77–78.

Career: Univ. of Tubingen, Germany: Alexander von Humboldt Foundation Fellow 76–77; Univ. of Madras: Scholar 69–70, Res. Fellow 70–74, Postdoc 74–76, Reader 78–82; Bharathidasan Univ.: Reader 82–84, Prof. 84–; Univ. of Manchester Inst. of Sc. and Technol., Manchester: Royal Soc. and Nuffield Foundation Bursar 79–80; Univ. of Uppsala, Swedish Natural Sc. Res. Council: Guest Sci. 81; Univ. of Kyoto, Japan Soc. for Promotion of Sc.: Fellow 84–85; S N Bose National Centre for Basic Sc.: Hon. Faculty Member 94–98, JSPS Invitation Fellow; Osaka City Univ 2002 & Univ. of Tokyo 2006; Los Alamos National Lab, USA: Vis. Sci.

Scientific Work: Made significant contributions to nonlinear dynamics, which include soliton theory and its application to ferromagnets, symmetries and singularity structures of integrable and non-integrable systems, classical chaos in a variety of nonlinear oscillators and time delay systems, chaotic nonlinear electronic circuits, controlling and synchronization of chaos, and quantum chaos in Rydberg atoms in external field as well as its general aspects, and development of new methods of solving nonlinear differential equations.

Important Publications: **(1)** Continuum spin system as an exactly solvable dynamical system (1997) *Phys. Lett.* **61A**, 53–4. **(2)** Lie transformations, nonlinear evolution equations and Painleve forms (1983) *J. Math. Phys.* **24**, 795–806. **(3)** The simplest dissipative nonautonomous chaotic circuit (1994) *IEEE Trans. Circuits & System* I **41**, 462–63. **(4)** On the complete integrability and linearization of certain second order nonlinear ordinary differential equations (2005) *Proc. R. Soc. London* **A461**, 2451–76. **(5)** *Nonlinear dynamics: Integrability, chaos and spatio-temporal patterns* (2003) *Springer-Verlag* (Advanced Texts in Physics).

Memberships: Member: American Physical Soc.; London Inst. of Physics; American Soc. for Industrial and Applied Mathematics • Univ. of Tubingen, Germany: Alexander von Humboldt Foundation Fellow 76–77 • Fellow: NASI 89; INSA 92.

Awards & Distinctions: S S Bhatnagar Prize 89 • Tamil Nadu Scientists Award 94 • UGC Meghnad Saha Award in Theoretical Sciences 90 • INSA Biren Roy Memorial Lecture Award 96 • Goyal Prize in Physics 2005 • INSA V V Narlikar Memorial Lecture Award 2006 • A C Banerjee Memorial Lecture Award of NASI 2007.

Lal, Bijan Bihari*

Elected: 1948
Specialization: Archaeological Chemistry; Archaeometry; Conservation Archaeology
Date and Place of Birth: 4 August 1913; Biswan, Uttar Pradesh
Parents: Bankey Bihari Lal and Puttri Devi
Spouse and Children: Shakuntala; two *s*, four *d*
Last Address: 47, Subhas Road, Dehra Dun 248 001, India
***Deceased:** 2 June 2000

Education: Lucknow Univ.: BSc, MSc 37, PhD 42.

Career: Archaeological Survey of India: Offr on Spl Duty 43–45, Archaeol. Chemist 45–46, Chief Archaeol. Chem. 66–74; Salarjung Museum, Hyderabad: Consultant 74; Indian Oil Corpn: Consultant 75; Addis Ababa Museum: UNESCO Consultant 76.

Scientific Work: Chemical work conducted in this branch of the Archaeological Survey of India is highly specialized and deals mostly with chemical and physical examination of archaeological specimens such as coins, bronzes, clays, ceramics, in order to determine their composition and techniques. Petrological examination of rocks from ancient monuments and metallographic examination of ancient alloys are also required in the course of studies on the problems of reconstructing the techniques and scientific methods of ancient India. Worked also on the chemical treatment, preservation and conservation of ancient monuments, rural paintings, silk and oil painting, manuscripts and other works of art and museum exhibits.

Memberships: Fellow: London Chemical Soc. • Member: American Chemical Soc.

Awards & Distinctions: Founder President: Indian Assn for the Study of Conservation of Cultural Property 65–75 • Vice President: Rome Centre General Assembly 69.

Lal, Devendra

Elected: 1965
Specialization: Earth & Planetary Sciences; Nuclear Physics; Geochemistry
Date and Place of Birth: 14 February 1929; Varanasi, Uttar Pradesh
Parents: RadheKrishna and Sita Devi
Spouse: Aruna
Address: Scripps Institute of Oceanography, Geosciences Research Division, La Jolla, California 92093-0244, USA
Tel. (+1-858) 534 2134 (O), (+1-858) 587 1535 (R)
email: dlal@ucsd.edu

Education: BHU: BSc 47, MSc 49; Bombay Univ.: PhD 60.

Career: Univ. of California: Postdoc Res. 60; TIFR, Bombay: Res. Student 49–50, Res. Asst 50–53, Res. Fellow 53–57, Fellow 57–60, Assoc. Prof. 60–63, Prof. 63–70, Sr Prof. 70–72; Univ. of California, USA: Vis. Prof. 66–67, Prof. 67; Scripps Institution of Oceanography: Asst Res. Fellow 58–60, Prof. 67; PRL, Ahmedabad: Dir 72–83, Sr Prof. 83–89, Sr Prof. 87–89; Inst. of Geophys. and Planetary Phys., Univ. of California, USA: Vis. Prof. 83–84.

Scientific Work: Primary thrust of work is in the fields of cosmic ray physics, nuclear physics, earth and planetary sciences and astrophysics. Early work was in field of composition and energy spectrum of primary cosmic radiation, and elementary particle physics. Subsequently, initiated a major programme on studies of cosmogenic radionuclides, with emphasis on their production rate calculations and their applications to learn about nature and rates of physical and biogeochemical processes occurring in major earth surface reservoirs. These studies, along with cosmic ray tracks, were extended to meteorites and lunar samples to evaluate the composition and energy spectrum of cosmic rays over different time scales, lunar regolith dynamics and exposure history of meteorites in space. Current interest is on studies of site specific erosion rates and evalution of geomorphic surphase based on radionuclides produced in-site by cosmic ray interactions in the surfaces of interest. All the above studies rest on strong theoretical basis and innovative experimental techniques developed jointly with students and colleagues.

Important Publications: **(1)** The preparation of large nuclear emulsion detectors and their application to the study of K-mesons and hyperons (1953) *Proc. Indian. Acad. Sci.* **A38**, 277–287. **(2)** Cosmic ray produced Si_{32} in nature (1959) *Phys. Rev. Lett.* **3**, 380. **(3)** Cosmic ray produced radioactivity on the earth (1967) *Handbuch der Physik*, Springer-Verlag, Berlin, **46/2**, 551–612. **(4)** Cosmic ray tagging of erosion surfaces: *in situ* production rates and erosion models (1991) *Earth Planet. Sci. Letts.* **104**, 424–439. **(5)** Evidence for a large century time-scale changes in solar activity in the past 32 K yr, based on *in situ* 14C in ice at Summit, Greenland (2005) *Earth Planet. Sci. Lett.* **234**, 335–349.

Memberships: Member: Intl Acad. of Astronautics 85 • Fellow: INSA 71; NASI 88; Meteoritical Soc. 75; Indian Geophysical Union 63; Royal Soc. of London 79; Royal Astronomical Soc. 84; PRL, Ahmedabad 91; TIFR 96; Geochem. Soc., USA 97; Am. Assoc. Adv. Sci. 97; Am. Geophysical Union 2005; Founder Member: TWAS 83

Awards & Distinctions: S S Bhatnagar Prize 67 • Padma Shri 71 • FICCI Outstanding Scientist Award 74 • Foreign Assoc. US Natl Acad. Sci. 75 • NASA Special Recognition Award 79 •; Jawaharlal Nehru Award 86 • NASA Group Achievement Award 86 • Geol. Soc. India 92.

Lal, Makund Behari*

Elected: 1942
Specialization: Zoology; Parasitology; Experimental Zoology
Date and Place of Birth: 31 January 1907; Biswan, Sitapur, Uttar Pradesh
Parents: Bankey Behari Lal
Spouse: Surat Kumari
Last Address: 4/99, Vidyutnagar, P O Dayalbagh, Agra 282 005, India
***Deceased:** 5 December 2002

Education: Univ. of Lucknow: BSc 26, MSc 28, DSc 37; Univ. of Edinburgh, Scotland: DSc 49.

Career: Univ. of Lucknow, Dept of Zoology: Res. Fellow 28–29, Demonstrator 29–37, Lecturer 37–49, Reader 49–54, Prof. 54–67, Dean of Sci., and Vice-Chancellor; Dayalbagh Education Inst., Agra: Dir; President, Lucknow Univ. Res. Soc.; Govt of India delegate to General Assembly IUBS Rome, Zoology and Entomology Section, Indian Sci. Congress; Chmn. Open Session, International Congress Hist. of Sc., Cornell and Philadelphia.

Scientific Work: Significant contributions to the morphology and taxonomy of trematode parasites and larval helminths both in India and in the United Kingdom. Also conducted *in vitro* and biochemical investigations on helminthic parasites. Described a new genus of bird parasite *Psilorchis indicus*, under the family Psilostomidae that was distinct from other members of the family. Split the genus *Notocotylus* into *Hindra* and *Naviaformia*. Indentified two new species of *Paramonostomum*. Other new species include *Lavinsenulla indica* from the bursa fabricii of jack spine. Made histopathological studies of the invertebrate hosts of helminths, and demonstrated how the injection of the snail by Trematode larvae affects the life of the host. Obtained a crude extract of terminal 8 segments of the Indian cattle leech (*Hirudinaria*) and demonstrated its anticoagulant activity. Demonstrated that the red colour of the amphistome, *Gastrothylax crumenifer* is due to a pigmented layer that extends along the length of the ventral pouch, just over the layer of oblique muscles next to the general parenchyme. Undertook histochemical and X-ray diffraction study of the epicuticle of two Indian scorpions.

Important Publications: **(1)** Studies on the Trematode parasites of birds Part I (1937) *Proc. Indian Acad. Sci.* **B5** 33–44; Part II (1937) *Proc. Indian Acad Sci.* **B6** 274–283. **(2)** Anticoagulant activity of the Indian cattle leech (1950) *Nature* **166** 480. **(3)** Absence of chitin in epicuticle of some Indian scorpions (1957) *Science* **126** 508–509.

Memberships: Fellow: INSA 62; Zoological Soc. of India.

Awards & Distinctions: Vice-president Intl Congr. of History of Sci. 62.

Lal, Ravindra Kumar

Elected: 1986
Specialization: Metamorphic Petrology; Mineralogy; Thermodynamics
Date and Place of Birth: 14 October 1936; Darbhanga, Bihar
Parents: K N Lal and Sita
Spouse and Children: Sudha; one *s*, two *d*
Address: 69, Nand Nagar, Karaundi, BHU Post, Varanasi 221 005, India
Tel. (0542) 257 5129 (R)
email: ravindraklal@rediffmail.com

Education: BHU, Varanasi: BSc 56, MSc 58; Univ. of Toronto, Canada: PhD 66.

Career: BHU, Dept of Geology: Lecturer 58–72, Reader 72–83, Prof. 83–98, Head 86–90, CSIR Emeritus Sci. and INSA Sr Sci. 98–2007; Canadian Commonwealth Fellow 62–66, Alexander von Humboldt Fellow 77–78, 82–83, Volkwagenwerk Foundation Fellow, Germany 83 & 84.

Scientific Work: Proposed - resite origin of corderite-gedrite rocks of Fishtail Lake, Ontario, Canada, and silica-deficient sapphirine-spinel-cordierite granulites of Sonapahar (Meghalaya) and Ganguvarpatti (Madurai, TN); Demarcating isograds based on inferred metamorphic reactions and zones on the basis of critical mineral assemblages instead of traditional first appearance of classic index minerals, from Barrovian type of metamorphism of pelitic rocks of Sini (Singhbhum, Bihar) and Takdah (Darjeeling Himalaya). A detailed petrology, mineralogy and chemographic rocks from different precambrian terrains of India, viz. Sini (Singhbhum), Sonapahar (Meghalaya), Takdah (Darjeeling Himalaya), Southern Indian Granulites, Paderu (Eastern Ghats) and Khetri Copper belt (Rajasthan). A detailed study of UHT sapphirine-spinel-quartz granulites from Paderu, Eastern Ghats, India. Internally consistent garnet-orthopyroxene-plagioclase-quartz calibration for geothermobarometry of granulites. Sixty three new internally consistent geothermobarometers have been calibrated in MgO-Al_2O_3-SiO system for mineral equilibria involving sapphirine-spinel-quartz-cordierite-garnet-sillimanite-orthopyroxene. Proposed several chemical potential diagrams for sapphirine granulites.

Important Publications: **(1)** Corderite-gedrite rocks and associated gneisses at Fishtail Lake, Harcourt Township, Ontario (1969) *Can. J. Earth Sci* **6**, 145–165. **(2)** Chemographic relationships in sapphirine-bearing rocks from Sonapahar, Assam, India (1978) *Contrib. Mineral. Petrol.* **67**, 169–187. **(3)** P-T-X relationships deduced from corona textures in sapphirine-spinel-quartz assemblages from Paderu, Southern India (1987) *J. Petrol.* **28**, 1139–1168. **(4)** Internally consistent recalibrations of mineral equilibria for geothermobarometry involving garnet-orthopyroxene-plagioclase-quartz assemblages and their application to the Southern Indian granulites (1993) *J. Metamor. Geol.* **11**, 855–866. **(5)** Metamorphic evolution of granulites from Southern Indian Shield (2003) *Milestones in Petrology,* Mem. Geol. Soc. India, **52**, 61–108.

Memberships: Fellow: INSA 94; NASI 2001.

Awards & Distinctions: GSI M R Srinivasa Rao Award 85 • National Mineral Award, Ministry of Steel and Mines, Govt of India 95.

Lal, Shankar*

Elected: 1974
Specialization: Radio Engineering; Aeronautical Engineering
Date and Place of Birth: 25 June 1923; Banaras
Spouse and Children: Claudia; two *s*, two *d*
Last Address: Indian Institute of Technology, Kharagpur
***Deceased:** 25 September 1991

Education: BHU: BSc 44; IISc, Bangalore: DIISc 46; Univ. of London: DIC 47, MSc 49; California Inst. of Technol., USA: PhD 55.

Career: Civil Aviation Training Centre, Allahabad: Instructor 50; BHU, Dept of Mechanical Engg: Lecturer 50–52, Asst Prof. 52–58; Thapar Inst. of Engg. & Tech., Patiala: Prof. 58; Univ. of Roorkee, Dept of Mechanical Engg: Prof. 58–64, Head 65–78; IIT, Kharagpur: Dir 78–83; Naval PG School, Calif., USA: Adjunct Prof. 88–91.

Scientific Work: Research contributions in the fields of fluid mechanics, heat transfer and solid mechanics.

Memberships: Fellow: INAE; London Inst. of Mechanical Engineers; Institute of Engineers, India.

Lal, Shyam

Elected: 2001
Position: Sr Prof., PRL, Ahmedabad
Specialization: Ozone and Trace Gases for Atmospheric Processes; Environmental and Climatic Changes
Date and Place of Birth: 25 December 1951; Sahpau, Uttar Pradesh
Parents: Hazari Lal and B Devi
Spouse and Children: Saroj; one *s*, one *d* (Sachin, Shweta)
Address: Professor, Physical Research Laboratory, Navrangpura, Ahmedabad 380 009, India
Tel. (079) 2631 4671 (O), (079) 2745 3120 (R), Mobile: 94276 27076
email: shyam@prl.res.in

Education: Kanpur Univ.: BSc 72, MSc 74; Gujarat Univ.: PhD 82.

Career: PRL: Vis. Sci. 81–84, Res. Assoc. 86–87, Sci. D 87–92, Reader 92–98, Assoc. Prof. 98–2001, Prof. 2002–07, Sr Prof. 2008–; Max Planck Inst., Lindau: Guest Sci. 84–85; Max Planck Inst., Mainz: Guest Sci. 89.

Scientific Work: Day to night and solar eclipse induced changes in the vertical distribution of ozone over Thumba using rocket borne optical sensors have been observed. Worked on atmospheric trace gases such as chlorofluorocarbons related to ozone chemistry using balloon borne cryogenic air sampler and gas chromatographic techniques at Max Planck Institute of Aeronomy, Lindau, Germany. A steep increase in the abundance of one of the Br containing trace gases in the atmosphere over southern Europe was observed. Set up a gas chromatographic laboratory at PRL, Ahmedabad and also contributed to the indigenous development of a balloon borne cryogenic air sampler. Measurements of climate sensitive tropospheric ozone and related trace gases and impact of anthropogenic emissions on their distributions have been initiated from many sites in India. The chemistry of these gases is observed to be different in India as compared to that in the developed countries like US and Europe due to differences in the chemical nature of air.

Important Publications: **(1)** Impact of transport from the surrounding continental regions on the distributions of ozone and related trace gases over the Bay of Bengal during February (2003, 2007) *J. Geophys. Res.* **112**, D14302. **(2)** Seasonal variations in surface ozone and its precursors over an urban site in India (2000) *Atmos. Env.* **34**, 2713–2724. **(3)** Ozone in the marine boundary layer over the tropical Indian Ocean (1998) *J. Geophys. Res.* **103**, 18907–18917. **(4)** Observed vertical profile of sulphur hexafluoride (SF_6) and its atmospheric applications (1997) *J. Geophys. Res.* **102**, 8855–8859. **(5)** Increasing abundance of $CBrClF_2$ in the atmosphere (1985) *Nature* **316**, 135.

Memberships: Fellow: INSA 2004; NASI 2007.

Awards & Distinctions: Astronautical Soc. of India ASI Award in Space Science and Application 2003.

Lala, Anil Kumar*

Elected: 1993
Specialization: Biological Membranes
Date and Place of Birth: 13 January 1950; New Delhi
Parents: Balraj Lala and Raj Rani
Spouse and Children: Krishna; one s (Vishal)
Last Address: Department of Chemistry, Indian Institute of Technology, Powai, Bombay 400 076, India
***Deceased:** 18 July 2004

Education: Univ. of Delhi: BSc 69; Univ. of Bombay: PhD 75.

Career: CDRI, Lucknow: Sr Chemist 74–75; Univ. of Ghent, Belgium, Dept of Chem.: Postdoc Fellow 75–76; Harvard Univ., Dept of Chem.: Postdoc Fellow 76–78; IIT, Bombay, Dept of Chem.: Asst Prof. 78–86, Prof. 86–2004, Biosciences and Engg Group: Convenor 83–87, Regional Sophisticated Instrumentation Centre: Head 92, INSA Res. Fellow 89–92.

Scientific Work: Work dealt primarily with structural organization of membrane bound proteins, molecular mechanism of toxin invasion and role of cholesterol in membranes. Succeeded in deducing the transmembrane structure for glycophorin A and glucose transporter from human erythrocytes. Currently engaged in deducing the molecular mechanism of pore forming alpha-toxin from *Staphylococcus aureus*, cellular entry of diphtheria toxin and membrane fusion proteins of viral origin.

Important Publications: **(1)** Mass spectra of steroidal alkyl ethers (1972) *Org. Mass Spectrosc.* **6** 119–1934. **(2)** Modelling of hydrolysis controlled anaerobic digestion (1992) *J. Chem. Tech. Biotech.* **57** 337–344. **(3)** Orientation of benzophenone group at various depths in bilayers (1993) *J. Am. Chem. Soc.* **115** 3982–88. (4) Fluorescent and photoactivable probes in depth-dependent analysis of membranes (2002) *Chem. Phys. Lipids* **116** 177–188.

Memberships: Member: Res. Council of National Environmental Engg Res. Inst., Nagpur; Environmental Biotechnology Task Force; Management Advisory Committee for Young Scientists; American Chemical Soc.; Biochemical Soc., UK • Fellow: INSA 2003.

Awards & Distinctions: IASc Assoc. 83–86 • INSA Young Scientist Award 81 • INSA Res. Fellow 89–91.

Lele, S H*

Elected: 1936
Specialisation: Marine Zoology
Last Address: R P Gogate College, Ratnagiri, Bombay, India
***Deceased**

Education: Univ. of Bombay: MA, MSc; Univ. of Liverpool: PhD.

Career: Royal Inst. of Sci.: Lecturer in Zoology; Gogate College, Ratnagiri: Prof.

Scientific Work: Work related to revision of the genus *Drepane*, vascularization of the air chambers of the snake-headed fish, physical morphology of the thymus gland of fishes and faunistic survey of planktons of Bombay Harbour.

Lele, Shrikant

Elected: 1986
Specialization: Physical Metallurgy and Materials Science
Date and Place of Birth: 24 January 1943; Varanasi, Uttar Pradesh
Parents: Vidyadhar Mukund Lele and Kusum
Spouse and Children: Chitralekha; one *s*, one *d*
Address: 4, Simran, Plot No. 21, Chintamani Housing Society, Karve Nagar, Pune 411 052, India
Tel. (020) 3026 6347 (R), Mobile: 97664 33322
email: drslele@gmail.com

Education: BHU: BSc Hons 60, MSc 62, PhD 67.

Career: BHU, Inst., of Technol., Dept of Metallurgical Engg: UGC Jr Res. Fellow 63–66, Sr Res. Fellow 67–72, Reader 75–83, Prof. 83–2005, Rector 2005–08; Max-Planck Inst. fuer Metallforschung, Germany: Alexander von Humboldt Foundation Fellow 73–74.

Scientific Work: Developed a novel theoretical approach for the calculation of X-ray diffraction effects from faulted close-packed structures. Applications have included diffraction study of phase transformations among the small-period modifications of SiC; between fcc and hcp structures exhibited by Co alloys; and in Cu base shape memory alloys having N_9R and $N_{18}R$ martensites. The latter involved the evolution of the concept of non-random fault distributions as well as development of suitable mathematical techniques for their treatment. Pioneering work in the field of quasicrystals has led to the only unified 6-dimensional structural models for materials showing 3-, 5-, 10- and 12-fold axes of symmetry in addition to icosahedral symmetry. In the area of solution thermodynamics, established a correlation between metallic glass formation and the second derivative of the free energy with respect to composition. Ground-state structures for hcp ordered phases have been established. A novel model independent expression for the free energy of undercooled phases has been suggested and utilized to calculate entropy catastrophe temperature and viscosity of undercooled melts.

Memberships: Fellow: INSA 87; NASI 91; INAE 2007.

Awards & Distinctions: National Metallurgist's Day Award 84 • S S Bhatnagar Prize 87.

Likhite, Viswanath N*

Elected: 1936
Specialization: Cotton Root Rot
Date and Place of Birth: 1896; Bombay Presidency
Spouse and Children: Vimal Akka; three *s*
Last Address: 2017, Maple, Evanston, Illinois 60201, USA
***Deceased:** 1 April 1990

Education: Poona Univ.: BA 18, BSc 20; Strasbourg Univ., France: PhD 26.

Career: Indian Women's Univ., Dept of Biology: Lecturer; Ferguson College, Poona, Dept of Biology: Lecturer 19–22; Cornell Univ.: Asst to Plant Pathologist 26–27; Inst. of Mycology, Holland: Asst to Plant Pathologist 27–29; Baroda State Service, Baroda: Dy Dir and Dir 30–50; Mc Pherson College, USA, Dept of Botany: Prof. 51; Elgin State Hospital, USA: Histochemist; Bishop College and Wiley College, USA: Chmn.

Scientific Work: Research included the development and biology of some ascomycetes; cytological aspects of the virus diseases in plants; relative parasitism of the cotton root rot organisms in Gujarat; starch accumulation in stenosised cotton plants, etc.

Lohia, Anuradha

Elected: 2007
Position: Sr Prof., Bose Institute, Kolkata
Specialization: Cell Cycle of Protozoan Parasites; Molecular Genetics and Genomics; Regulation of Gene Expression
Date and Place of Birth: 11 June 1956; Kolkata, West Bengal
Parents: Govind Prasad Fatehpuria and Sharda Devi
Spouse and Children: Arun Lohia; one *d* (Madhura)
Address: Department of Biochemistry, Bose Institute, P-1/12, CIT Scheme VII M, Kolkata 700 054, India
Tel. (033) 2569 3224 (O), (033) 2354 3661 (R), Mobile: 98310 79838
email: amoeba@boseinst.ernet.in

Education: Univ. of Calcutta: BSc Hons 75, MSc 77, PhD 86.

Career: IICB, Kolkata: Jr Res. Fellow 80–82, Sr Res. Fellow 82–85; New York Univ. Medical Center, USA: Postdoc 86–88; Bose Inst.: Pool Offr 88–89, Lecturer 90–92, Sr Lecturer 92–97, Reader 97–2003; Prof. 2003–; Bioinformatics Centre: Sci.-in-Charge 2002–.

Scientific Work: *Entamoeba histolytica* is a protozoan parasite, which infects and causes morbidity to at least 500 million people worldwide. Research in the laboratory is focussed towards understanding the regulation of growth and proliferation of this pathogen. Unlike other eukaryotes, the cell division cycle of this organism demonstrates absence of 'checkpoints' that ensure alternation of DNA duplication with chromosome segregation. Has used RNA interference technology to down-regulate specific gene expression in order to identify proteins that are involved in genome re-duplication. Approximately 9,000 ORFs have been identified in the *Entamoeba* genome, of which 40–45% encode novel proteins. Furthermore, has shown the absence of a large number of known cell cycle genes in the *Entamoeba* genome. In order to identify proteins involved in cell cycle progression and explain the occurrence of genome re-duplication, aims to use genome wide expression profiling. Studies demonstrate a deviation in the known mechanisms of cell cycle progression and maintenance of genome fidelity.

Awards & Distinctions: DBT National Award for Young Woman Bioscientist 2001 • Shree Shakti Science Sanman 2005 • Zee Astotra Award 2005.

Luthar, Indar Singh*

Elected: 1977
Specialization: Functional Analysis; Number Theory; Algebra
Date and Place of Birth: 31 March 1932; Sialkot (now in Pakistan)
Parents: Hari Ram and Ved Kaur
Spouse and Children: Jyoti; one *s*, one *d* (Vineet, Meera)
Last Address: Department of Mathematics, Panjab University, Chandigarh 160 014, India
***Deceased:** 7 December 2006

Education: Univ. of Panjab: BA 50, MA 52, PhD 57.

Career: Univ. of Illinois, USA: Res. Fellow 54–57, Vis. Assoc., 65–66; Panjab Univ., Chandigarh: Lecturer, Reader 58–64, Prof. 66–92; Univ. of Colorado, USA: Vis. Prof. 64–65; Northern Illinois Univ., USA: Vis. Prof. 70–71.

Scientific Work: Published papersf in several areas of mathematics: uniqueness of the invariant mean on abelian semigroups; uniform distribution of sequences; lower bounds for maximum distance codes; Landau's theorem; Minkowski's theorems in completion of A-fields; natural numbers represented by binary quadratic forms, etc.

Important Publications: **(1)** *Sets, Functions and Numbers*, Narosa. Wrote seven books at graduate and post-graduate levels.

Madhava, Krishna Bindu*

Elected: 1934
Specialization: Statistics; Demography; Actuarial Sciences
Date and Place of Birth: 13 March 1895; Kurnool, Tamil Nadu
Children: one s, one d
Last Address: 231, Lloyds Road, Madras 600 086, India
***Deceased:** 26 April 1984

Education: Univ. of Madras: MA Hons 16.

Career: Univ. of Madras: Res. Scholar 16–18; Central College, Bangalore, Dept of Maths: Asst Prof. 19–24; Maharaja's College, Mysore: Prof. of Statistics and Mathematical Economics 24–46; Presidency College, Calcutta: Hon Prof. of Statistics 44–46; Govt of India, Dept of Education, Health & Lands: Economist and Statistician 44–47.

Scientific Work: Well known for contributions to statistics, mathematical economics, demography and actuarial science. Was a founder member (along with P C Mahalonobis) of the Indian Statistical Institute. Served as a member of the Population Data Committee to study the age tabulation of the 1941 census data.

Memberships: Member: Indian Mathematical Soc.; Indian Roads Congress; Governing Body of Indian Statistical Inst.; New York Econometric Soc. • Fellow: INSA 39; Royal Astronomical Soc.; Intl Inst. of Statistics.

Madhavarao, Bangalore Srinivasarao*

Elected: 1936
Specialization: Geometry of Cubic Curves; Classical Analytical Mechanics; Quantum Mechanics
Date and Place of Birth: 29 May 1900; Chamarajanagar, Mysore
Parents: Srinivasa Rao and Raji Bai
Spouse and Children: Subhadra Bai; two s, five d
Last Address: 59, Kanakapura Road, Basavanagudi, Bangalore 560 004, India
***Deceased:** 10 June [illegible]

Education: Mysore Univ.: BSc 19; Calcutta Univ.: MSc 21, DSc 38.

Career: College of Engg, Bangalore, Dept of Maths: Lecturer 22–26, Prof. 30–38; Central College of Sci., Bangalore: Asst Prof. 26–30, Prof. of Applied Maths 38–55, Principal 53–55; Indian Inst. of Armament Studies, Poona: Prof. of Maths and Ballistics 55–60; Univ. of Poona: Tilak Prof. of Applied Mathematics 60–65.

Scientific Work: Was the first to point out the inadequacy of the neutrino theory of light to explain many properties of light. Work on Max Born's nonlinear field theory was conclusive and is referred to as Madhava Rao's theory of action functions. In study of Dirac's relativistic wave equation of the electron, saw that the spin of the electron actually emerges as a consequence of the Dirac equation formulated to satisfy relativistic invariance. Examined the ring-singularity model for the electron and showed that no model with the possible exception of a point singularity, is appropriate for the representation of elementary particles. Obtained a very general form of the action integral from which the field equations are derivable in a standard way, including certain invariants that had been ignored in earlier treatments.

Memberships: Fellow: INSA 53; London Royal Astronomical Soc.

Awards & Distinctions: S Ramanujan Prize 45 • President: Indian Math. Soc. 59–61.

Madhubala, Rentala

Elected: 2009
Position: Prof., JNU, New Delhi
Specialization: Molecular Parasitology
Date and Place of Birth: 8 August 1952; New Delhi
Parents: J K Khurana
Spouse and Children: R Chandrashekhar; two children
Address: School of life Sciences, Jawaharlal Nehru University, New Delhi 110 067, India
Tel. (011) 2674 2630 (O), (011) 2625 3934 (R), Mobile: 98102 91801
email: madhubala@mail.jnu.ac.in

Education: Delhi Univ: BSc 71, MSc 73; JNU: MPhil 74; Univ. of Hyderabad: PhD 83.

Career: Singareni Collieries Women's College: Lecturer 78; Govt Women's College, Karimnagar, AP, Part-time Lecturer 83–84; School of Life Sci., Univ. of Hyderabad: Res. Assoc., 84–85; Univ. of Texas Health Sci. Centre: Vis. Res. Fellow; Hershey Medical Centre, USA: Vis. Res. Fellow 86–88; CSIR: Pool Offr 89–90; School of Life Sci., JNU: Assoc. Prof. 90–98; Prof. 98–.

Scientific Work: Major contribution has been identification of novel drug resistance markers, chemotherapeutic and immunological targets in *Leishmania* and applications thereof. Identified a novel chemotherapeutic target, the glyoxalase system in *Leishmania donovani*. The glyoxalase I and II of *L. donovani* are trypanothione dependent and not glutathione dependent as in other organisms. Also developed biomarkers for detecting antimony and pentamidine resistance in *Leishmania donovani*. A real time PCR has been developed for the identification of antimony resistance in the *L. donovani* isolates using ABC transporter, MRPA and aquaglyceroporin (AQP1) as biomarkers. For the first time, proposed a model for the mode of action of pentamidine. Identified a high affinity and a low affinity transporter in *L. donovani* for the transport of pentamidine. The low affinity transporter is altered in the resistant line. Developed recombinant protein and DNA vaccines for preventing experimental visceral leishmaniasis. Also identified a novel bifunctional S-adenosylmethionine decarboxylase (SAMDC) – ornithine decarboxylase (ODC) of *P. falciparum*, a potential target for a new anti-malarial.

Important Publications: **(1)** Characterization and localization of ORFF gene from the LD1 locus of *Leishmania donovani* (2008) *Gene* **416,** (1–2), 1–10. **(2)** Antileishmanial effect of 3-aminooxy-1-aminopropane is due to polyamine depletion (2007) *Antimicrobial Agents and Chemotherapy* **51**, 2, 528–34. **(3)** Characterization of gene encoding glyoxalase II from *Leishmania donovani*: A potential anti-parasite drug (2006) *Biochem. J.* **393** (Pt 1), 227–34. **(4)** A heterologous prime boost vaccine regimen using ORFF DNA and recombinant ORFF protein con fers protective immunity against experimental visceral leishmaniasis in murine mouse model (2005). *J. Infect. Dis.* **191**, (12), 2130–2137. **(5)** Vaccination with DNA encoding ORFF antigen confers protective immunity in mice infected with *Leishmania donovani* (2003) *Vaccine* **21**, 1292–1299.

Memberships: Fellow: NASI 2007 • Member: Guha Res. Conference.

Awards & Distinctions: Young Scientist Award International Union of Biochemistry (IUB) • Young Scientist Travel Award, Japanese Biochemical Soc. and IUBMB • Biotechnology Career Fellowship, the Rockefeller Foundation • Career Research Initiative Award, Wellcome Trust • J C Bose Award • Global Health Travel Award, Bill and Melinda Gates Foundation • American Soc. of Microbiology (ASM) International Professorship.

Madhusudana, Nelamangala Vedavyasachar

Elected: 1974
Position: INSA Sr Sci., RRI, Bangalore
Specialization: Liquid Crystals
Date and Place of Birth: 9 May 1944; Mysore, Karnataka
Parents: N Vedavyasachar and Indira Bai
Spouse and Children: Kausalya; one *s* (Pramod)
Address: Liquid Crystal Laboratory, Raman Research Institute, C V Raman Avenue,
Bangalore 560 080, India
Tel. (080) 2361 0124/350, 2361 1015 (O), (080) 2333 3407 (R)
email: nvmadhu@rri.res.in

Education: Univ. of Mysore: BSc 62, MSc 64, PhD 71.

Career: Sarada Vilas College, Mysore: Demonstrator 64–65, Lecturer 65; Univ. of Mysore: Res. Fellow 65–71, Lecturer 71; RRI, Bangalore: Sci. 71–77, Assoc. Prof. 77–86, Prof. 86–2006, Head of Liquid Crystal Lab. 90–2000, Dean 2001–06, INSA Sr. Sci. 2006–; Paris Univ., Solid State Phys Lab.: Vis. Sci. 83–84; Pascal Res. Centre, Bordeaux Univ., France: Vis. Prof. 84–85.

Scientific Work: Main theoretical results: Proposed that near neighbour molecules of highly polar compounds have antiparallel correlations, thus giving rise to an apolar director even in such compounds; this can change to a polar short range order for large densities due to dipole-induced dipole and inter-chain interactions, and in turn give rise to double reentrance and smectic A polymorphism; showed that off-axis molecular dipoles give rise to the smectic C phase with tilted molecules; showed that flexoelectricity makes an important contribution to electrohydrodynamic instabilities in nematics; Developed a chiral axial next nearest neighbour xy model to account for the intermediate phases exhibited by antiferroelectric liquid crystals, and the changes in their structures by external electric fields; developed a frustrated packing model for the B6–B1–B2 sequence found in homologous series of bent-core molecules. Main experimental results: developed a new technique to measure the twist elastic constant of nematics; discovered high strength defects in impure nematics; found unusual growth phenomena in smectic A and smectic C liquid crystals, and locomotion in the latter; found spontaneous chiral symmetry breaking in some smectic C cylinders; discovered a new phase called undulated twist grain boundary smectic C*, and an extreme type II nature of such a medium; discovered the biaxial smectic A phase in mixtures of bent-core and rod-like molecules, striking stripe structures in such a medium, and anomalous temperature dependences of elastic constants in the nematic phase of the mixtures; showed that quenching of director fluctuations by electric fields determines the field-induced enhancement of the nematic-isotropic transition temperature; involved in cooperative effort with engineers of BEL to develop indigenous knowhow for manufacture of LCDs.

Important Publications: **(1)** Elastic and optical properties of some 4-*n*-alkyl–4–cyanobiphenyls (1976) *Mol. Cryst. Liq. Cryst.* **36**, 51. **(2)** A simple molecular theory of double reentrance exhibited by highly polar compounds (1990) *Liq. Cryst.* **7**, 31. **(3)** A simple model for phase transitions in antiferroelectric liquid crystals (1996) *Europhys. Lett.* **36**, 221. **(4)** A three-dimensionally modulated structure in a chiral smectic-C liquid crystal (1997) *Curr. Sci.* **73**, 761. **(5)** An orientational transition of bent-core molecules in an anisotropic matrix (2000) *Science* **288**, 2184.

Membership: Fellow: INSA 2000.

Awards & Distinctions: S S Bhatnagar Award 89 • Superconductivity and Materials Science Prize 2000 • Raja Ramanna Endowment Prize Lecture, JNCASR 2003.

Madyastha, Kattigari Madhava

Elected: 1990
Specialization: Bio-organic Chemistry; Xenobiotics Metabolism; Plant Biochemistry; Microbial Transformations
Date and Place of Birth: 22 July 1937; Udipi, Karnataka
Parents: Manjunatha Madyastha and Padmavathi
Spouse and Children: Prema; three s
Address: 162, Srikrishna, 5th Main, 4th Cross, NGEF Layout, Sanjay Nagar, Bangalore 560 094, India
Tel. (080) 2341 5584 (R)
email: kmm2237@yahoo.com

Education: Univ. of Madras: BSc 58; Karnatak Univ.: MSc 63; Poona Univ.: PhD 67.

Career: Oregon State Univ., Dept of Biochem.: Postdoc Fellow 67–69; St. Louis Univ. Medical School, USA, Dept of Biochem: Res. Assoc. 69–71, Sr Res. Assoc. 73–75, Res. Asst Prof. 75–77, Res. Assoc. Prof. 77–78; IISc, Bangalore, Dept of Biochem.: Sr Res. Fellow 71–73, Dept of Organic Chem.: Asst Prof. 78–83, Assoc. Prof. 83–88, Prof. and Chmn 88– 97, Emeritus Prof. 97–2002.

Scientific Work: Comprehensive and fundamental effort made towards the understanding of the mode of metabolism of various terpenoids in different living systems. Pioneering work carried out in elucidating pathways for the biotransformations of representative terpenoids in mammalian system and established the functional role of liver microsomal Cyt P-450. Established the mechanism of hepatotoxicity as well as destruction of Cyt P-450 by some of the naturally occurring terpenoids. Isolated several novel microbial strains known to carry out specific organic reactions efficiently. Work on microbial transformations of steroids and sterols led to the isolation of several hitherto unknown steroids. Established a pathway hitherto unknown for the microbial conversion of sterols to estrone. Higher plant Cyt b5 and Cyt P-450 systems were solubilized, purified and characterized.

Important Publications: **(1)** Studies on the microsomal 11α-hydroxylation of progesterone in *A. ochraceus* Isolation, characterization and solubilization of the hydroxylase system (1984) *Can J. Biochem. and Cell Biol.* **62**, 100–107. **(2)** (+) Pulegone mediated hepatotoxicity in rat: Role of microsomal cytochrome P-450. *In* (1990) *Biological oxidation systems*, Academic Press, **1**, pp. 115–131. **(3)** Structural flexibility in the biocatalyst mediated functionalization of ring 'A' in Salannin, a tetranortriterpene from *Azadirachta Indica* (2000) *J. Chem. Soc. Perkin Trans. I*, 3055–3062. **(4)** Scavenging of peroxynitrite by phycocyanin and phycocyanobilin from *Spirulina* *platensis*: Protectin against oxidative damage to DNA (2001) *Biochem. Biophys. Res. Commun.* **285**, 262–266. **(5)** Efficient scavenging of hydroxyl radicals and inhibition of lipid peroxidation by novel analogues of 1,3,7-trimethyluric acid (2001) *Life Sciences*, **70**, 381–393.

Memberships: Fellow: NASI 88.

Awards & Distinctions: Tatachem Professorship 94 • Sigma Xi, Phi Lambda Upsilon Phi Sigma, USA 68.

Mahabale, Tryambak Shankar*

Elected: 1951
Specialization: Palaeobotany; Pteridophytes; Plant Anatomy
Date and Place of Birth: 19 October 1909; Ahmednagar
Children: two s, four d
Last Address: Department of Botany, MACS Research Institute, Law College Road, Deccan Gymkhana Pune 411 004, India
***Deceased:** 3 July 1983

Education: Univ. of Bombay: BSc 32, BA 34, MSc 35, PhD.

Career: Ferguson College, Poona: Lecturer 33; Gujarat College, Ahmedabad; Prof. 37; Inst. of Sci., Bombay: Assoc. Prof. 47; Univ. of Poona: Prof. and Head of Botany Dept 53–70. Indian Bot. Soc.: Secretary 47–48, Vice President 50–51, President 68.

Scientific Work: Contributions ranged from bryophytes, pteridophytes, angiosperms to palaeobotany. Many of the important liverworts of Western Ghats such as *Riccia, Plagiochasma, Targionia, Asterella, Fossombronia, Aspiromitus* were worked out. Thereby proposed two broad trends in the evolution of liverworts: those with 9 chromosomes and those with 8 chromosomes. Intensive work on the morphology, anatomy and cytology of several ferns from Western Ghats, such as *Ceratopteris, Stenochlaena, Adiantum, Snisogonium, Pleocnemia, Lygodium* and *Goniopters* is well known. An unusual feature was observed in the prothalli of *Nephrolepis* and *Adiantum*; they possessed tracheids. Dicovered prothalli in *Lycopodium cernuum* at Castle Rock and *L. hamiltonii* and Khandala. Contributions on Hydropteridineae is noteworthy because of their bearing on the fossil forms found in the Deccan intertrappean series. Palms, fossil and living, interested him most and last few years of his life were completely devoted to them. Carried out detailed study of the anatomy of roots in forty important species of living palms. Studied the evolution of the genus *Cocos*.

Memberships: Fellow: INSA 58; Maharashtra Acad. of Sci. 78.

Awards & Distinctions: Birbal Sahni Medal 78 • President: Indian Sci. Congress, Bot. Section; Palynol. Soc. India 67–68.

Mahadevan, Calamur*

Elected: 1934
Specialization: Economic Geology; Nuclear Geology; Marine Geology
Date and Place of Birth: 6 May 1901; Nellore, Andhra Pradesh
Parents: Subrahmanyam and Janaki Ammal
Spouse and Children: Satyavati; two *s*, one *d*
Last Address: Department of Geology, Andhra University, Waltair, India
***Deceased:** 8 April 1962

Education: Madras Univ.: BA Hons 25, MA 27, DSc 31.

Career: Geol. Survey of Hyderabad: Asst Superintendent and Superintending Geologist 31–44; Andhra Univ., Dept of Geology: Prof., Head and Principal 45–62; UNESCO Expert in Geology in Brazil.

Scientific Work: Determined the physico-chemical characteristics of coal and lignite powder by X-rays, and extended research to other bituminous substances and natural resins. Studied the geology of Keonjhar and Bonai iron ore fields and chromite deposits of Jorhat. Studied water problems in the western districts of Hyderabad State and mapped the Bhima basin part of the Pakhals of the Godavari Valley and Raichur and Shalapara. Investigated several mineral deposits and did sampling of the Hatti Gold Fields. Guided the mapping of the Eastern ghats regions between Srikakulam and Ongole, the Nellore schist belt and the Cuddapah basin. Mainly responsible for organizing ocean studies at Andhra University in a multidisciplinary way bringing physical oceanography, marine geology, marine geophysics and marine biology into its fold.

Memberships: Fellow: INSA 45; GSI; Palaeobotanical Soc. of India; American Inst. of Mining and Metallurgical Engineering.

Mahadevan, Perurmadom Ramaiyer*

Elected: 1973
Specialization: Microbiology of Pathogens, Immunology and special reference to Leprosy, Fermentation Biotechnology
Place and Date of Birth: 20 May 1928; Cochin, Kerala
Parents: P M Ramaiyer and Saraswathy
Spouse and Children: Sita; two s, two d
Last Address: Malladi Research Centre, No. 52, Jawaharlal Nehru Road, Ekkattuthangal, Madras 600 097, India
***Deceased:** 27 April 2003

Education: Univ. of Madras: BSc 50; BHU: MSc 55; Princeton Univ., USA: MA 61, PhD 62.

Career: Univ. of Madras: Demonstrator 50–53; Gauhati Univ.: Lecturer 55–59; Princeton Univ., USA: Demonstrator 59–61; Rockefeller Univ., USA: Postdoc Fellow 62–65; BARC, Bombay, Biological Dn: Sr Sci. Offr 65–75 Head 67–72; IDPL, Rishikesh: Chief of R&D, Dy General Manager 67–78; Foundation for Medical Res., Experimental Biology and Therapy, Bombay: Dir 78–93; Malladi Res. centre: Dir Gen. 94–2001.

Scientific Work: Studied in detail chemistry of the cell wall of *Neurospora* and demonstrated single gene control of morphology mediated through cell wall polymers. Developed industrially useful strains for neomycin and streptomycin. Identified the molecular mechanism of infection of leprosy bacilli in human, mechanism of resistance in normal uninfected individuals as due to reactive oxygen. Identified basic molecular structural defects in the phagocytes of leprosy patents – developed a component for immunotherapy and prophylaxis; including studies in patents. Identified a 25 kDa protein as very potential protective antigen for leprosy. Several *in vitro* tests were developed for screening drugs for leprosy. Initiated production of recombinant proteins of commercial value.

Awards & Distinctions: ICMR Jalma Award.

Mahadevan, Subramony

Elected: 2003
Position: Prof., IISc, Bangalore
Specialization: Regulation of Gene Expression in Bacteria; Microbial Physiology; Microbial Evolution
Date and Place of Birth: 7 November 1953; Thiruvananthapuram, Kerala
Parents: P R Subramonier and V Chellammal
Spouse and Children: Usha; one *s* (Arun)
Address: Department of Molecular Reproduction, Development & Genetics,
Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2607 (O), (080) 2334 7595 (R), Mobile: 98452 08358
email: mahi@mrdg.iisc.ernet.in

Education: Kerala Univ.: BSc 74; MKU: MSc 78; Tufts Univ., USA: PhD 87.

Career: St. Xavier's College, Mumbai: Lecturer 79–80; Harvard Med School, USA: Res. Assoc. 87–89; TIFR, Mumbai: Vis. Fellow 90; IISc: Asst Prof. 91–96, Assoc. Prof. 97–2002, Prof. 2003–.

Scientific Work: The primary research focus of the laboratory is to understand the evolutionary significance of bacteria maintaining a set of genes that are apparently nonfunctional. The experimental paradigm has been the beta-glucoside utilization (bgl) genes of *Escherichia coli* and related microorganisms. These studies, primarily at the genetic and molecular levels, have provided a wealth of information on the organization and regulation of the genes. Three global regulators, DNA gyrase, H-NS and CRP-cAMP have been implicated in their regulation, suggesting that conditions that alter these factors may result in transient expression of the genes. Recent investigations are focussed on examining the possible role of the bgl genes in stationary phase. These studies have shown that mutations that activate the bgl genes confer a growth advantage in stationary phase (GASP) phenotype to the cell. The precise physiological basis of this advantage is being investigated. One possibility is that the regulators of the operon have additional functions that may be required under specific environmental conditions (the regulators constitute an efficient two-component signalling system). This possibility is being investigated using expression profiling to identify potential downstream genes. The evolution of new metabolic functions by mutations in preexisting genetic systems is also being investigated with the chb genes of *E. coli* as a paradigm.

Important Publications: **(1)** A bacterial gene involved in transcription antitermination: Regulation at a rho-independent terminator within the bgl operon of *Escherichia coli* (1987) *Cell* **50**, 635–640. **(2)** Transcriptional activation of the bgl operon of *Escherichia coli*: Negative regulation by DNA structural elements near the promoter (1995) *Mol. Microbiol.* **17**, 1085–1092. **(3)** Characterization of the regulatory elements involved in silencing the bgl operon of *E. coli*: Possible roles for DNA gyrase, H NS, and CRP cAMP in regulation (1997) *Mol. Microbiol.* **24**, 617–627. **(4)** Mutations that activate the silent bgl operon of *Escherichia coli* confer a growth advantage in stationary phase (2005) *J. Bacteriol.* **187**, 7912–7917. **(5)** Mutations that alter the regulation of the chb operon of *Escherichia coli* allow utilization of cellobiose (2007) *Mol. Microbiol.* **66**, 1383–1395.

Memberships: Life member: SBC (I); ISCB.

Awards & Distinctions: Rockefeller Biotechnology Career Award • Fulbright Award.

Mahajan, Kushal Kumar

Elected: 1991
Specialization: Atmospheric and Space Science; Ionosphere and Planetary Atmospheres
Date and Place of Birth: 12 December 1939; Hamirpur Sidhar, Jammu
Parents: Nand Lal and Gian Devi
Spouse and Children: Anita; two *s* (Rahul, Rohit)
Address: C-I/121, Janak Puri, New Delhi 110 058, India
Tel. (011) 4560 9234 (O), (011) 2553 6334 (R), Mobile: 98100 92120
email: kkmahajan@mail.nplindia.ernet.in

Education: Jammu and Kashmir Univ.: BSc 57; BHU: MSc 59, PhD 65.

Career: NPL: Sci. Asst 59–65, Radio Sci. Dn: Sci. 69–86, Dy Dir 86–2001, CSIR Emer. Sci. and INSA Sr. Sci. 2001-; Cornell Univ., Arecibo Observatory, USA: Res. Assoc. 65–67; NASA/Goddard Space Flight Centre, USA: Res. Assoc. 67–69; Sr Res. Assoc. 88–90; Inst. of Space & Astronaut. Sci. Japan: Vis. Prof. 98–99.

Scientific Work: Determined loss and transport parameters in the F-region plasma, modelled electron density and electron temperature, identified equatorial anomaly in the ionospheres of outer planets, introduced photodynamics to explain the ionopauses of non-magnetic planets, providing ionospheric evidence on the absence of magnetic field at Mars, and detected for the first time quasiperiodic echoes from E-region irregularities with the Tirupati MST radar. As Head, Radio and Atmospheric Sciences Division, in association. with A P Mitra turned the division into a major centre for global change research. Regional Research Centre for South Asia on IGBP at NPL and Free Air Carbon Dioxide Enrichment (FACE) facility at IARI, New Delhi were set up during tenure as Head of the division. The centre as well as FACE facility is doing excellent work on global change.

Important Publications: **(1)** Determination of loss coefficient and vertical transport in the ionospheric F region, (1967) *J. Atmos. Terr. Phys.* UK **29**, 43–59. **(2)** Extent of thermal non-equilibrium in the atmosphere, (1967) *J. Atmos. Terr. Phys.* UK **29**, 1137–1151. **(3)** On the lower altitude limit of the Venusian ionopause, (1989) *Geophys. Res. Lett.* USA **16**, 759–762. **(4)** Variability of dayside electron temparature at Venus (1994) *Geophys. Res. Lett.* USA **21**, 77–80. **(5)** Tropical E-region field aligned irregularities, (1999) *J. Geophys. Res.* USA **104**, 2613–2619.

Memberships: Fellow: INSA 93; Indian Geophysical Union 86.

Awards & Distinctions: NPL Merit Award for Ionospheric Modelling 79 • Shri Om Prakash Bhasin Award for Space and Aerospace 94.

Mahajani, Ganesh Sakharam*

Elected: 1935
Specialization: Higher Dynamics; Ferromagnetism; Hydrodynamics
Date and Place of Birth: 27 November 1898; Satara, Maharashtra
Parents: Sakharam Krishnaji Mahajani and Durga
Spouse and Children: Indumati Hari Paranjpye; one *s*, one *d*
Last Address: Sambharam, 864, Shivaji Nagar, Pune 411 004, India
***Deceased:** 26 July 1984

Education: Ferguson College, Poona: BA 20; Univ. of Cambridge, UK: Maths Tripos 22–24, PhD 29.

Career: Ferguson College, Poona: Principal 29–46; Deccan Education Soc.: Secretary 46; Vice Chancellor: Univ. of Rajputana States 47–53, Delhi Univ. 53–63, Udaipur Univ. 63–71, Pune Univ. 72–75.

Scientific Work: Worked on the theory of ferromagnetic crystals. Contributed mainly to a theoretical explanation of Webster's experimental results. Two types of crystals were considered: Iron which has a cubic structure; and pyrolite which has a non-cubic structure. In both, found that the structure consists of two simple lattices. Also tackled problems in geometry and differential equations.

Memberships: Fellow: INSA 35; NASI; Cambridge Philosophical Soc.

Awards & Distinctions: Smith Prize Univ. of Cambridge 26.

Mahalanobis, Prasanta Chandra*

Elected: 1935
Specialization: Statistics
Date and Place of Birth: 29 June 1893; Calcutta
Parents: Probodh Chandra and Nirodbashini
Spouse: Nirmal Kumari
Last Address: Indian Statistical Institute, 203, BT Road, Calcutta 700 035, India
***Deceased:** 28 June 1972

Education: Calcutta Univ.: BSc Hons 12; Cambridge Univ., UK: Mathematics Tripos 14–15.

Career: Presidency College, Calcutta: Asst Prof. 16–22, Prof. 22–45, Principal 45–48; Vishva Bharati: General Secretary 21–31; ISI Calcutta: Chief Executive 31; Calcutta Univ., Dept of Statistics: Head 41–45; Govt of India: Hon. Statistical Adviser 49; Planning Commission 53–67.

Scientific Work: Estimated the acreage and crop yield by random sampling, and carried out national sample surveys for collecting socio-economic data, consumer expenditure, public opinion, and other data. Did pioneering work in the design of sample surveys and organization of field work and tabulation of records. Published first paper on the anthropological observations on the Anglo-Indians of Calcutta and it established skill in applying statistical methods for extracting information from given data and drawing inferences. Was followed by other investigations which led to the formulation of the statistics known as Mahalonobis distance widely used in problems of taxonomical classification. With logical mind raised fundamental issues connected with the application of D^2 statistic and laid down an important axiom for the validity of cluster analysis called dimensional convergence of D^2.

Memberships: Fellow: Royal Soc. of London 45; King's College, Cambridge, Econometric Soc., USA; Pakistan Statistical Assn 52; Foreign Member: USSR Acad. Sci 58.

Awards & Distinctions: Univ. of Oxford Weldon Medal 44 • Devi Prasad Sarvadhikari Gold Medal 57 • Durgaprasad Khaitan Gold Medal 61 • INSA Srinivasa Ramanujan Medal 68 • Padma Vibhushan 68; President: INSA 57–58 • Univ. of Calcutta, Delhi, Stockholm and Sofia: DSc hc.

Maharana, Jnanadeva

Elected: 1994
Position: Prof., Inst. of Physics, Bhubaneswar
Specialization: String Theory; Field Theory; Quantum Gravity
Date and Place of Birth: 31 October 1945; Cuttack, Orissa
Parents: Sarat Chandra Maharana and Annapurna
Spouse and Children: Sumitra; one s
Address: Institute of Physics, Sachivalaya Marg, Bhubaneswar 751 005, India
Tel. (0674) 230 1058/211, 230 1825 (O), (0674) 230 3444 (R)
email: maharana@iopb.res.in

Education: Utkal Univ.: BSc Hons 66; IIT Kanpur: MSc 68, PhD 73.

Career: IIT Kanpur: JRF 68–69, SRF 69–73; Univ. of Tokyo: Postdoc Fellow 73–74; Inst. of Phys. Bhubaneswar: Res. Assoc. 75–78, Member of Faculty 80; Rutherford Appleton Lab., UK: Res. Assoc. 78–80; Univ. of Tokyo: Vis. Sci. 81; CERN, Geneva: 82, 85–86; Laboratoire Physique Theorique et Haute Energie, Orsay: Scientific Assoc. 87; Fermilab: Guest Sci. 88–89; California Inst. of Technol., USA: Vis. Sci. 92, Inst. for Advanced Study, Princeton 95; Yukawa Inst., Kyoto: Vis. Prof. 99.

Scientific Work: Nonfactorizability of the vertex operators for conformally coupled scalars, gauge fields and spinor field to axionic wormhole background was the first contribution in the subject. This result showed that wormholes do not determine constants of Nature, a result later obtained by Hawking independently. The gauge and gravitational Ward identities were derived for the first time. Proved existence of new wormhole solutions of string effective action establishing another intimate connection between string theory and the topology changing processes.

Important Publications: **(1)** Canonical structure of generalized nonlinear sigma model in constrained hamiltonian formalism (1983) *Ann. Inst. Henri Poincare* **39**, 193. **(2)** Strings in background: A BRST hamiltonian approach (1987) *Nucl. Phys.* **B283**, 126. **(3)** Vertex operators for axionic wormholes (1990) *Nucl. Phys.* **B333**, 160.

(4) Noncompact symmetries in string theory (1993) *Nucl. Phys.* **3**. **(5)** *String theory and fundamental interactions* (2008) Springer Publ.

Membership: Fellow: INSA 95.

Awards & Distinctions: Jawaharlal Nehru Fellowship 95–97.

Mahendra, Beni Charan*

Elected: 1938
Specialization: Vertebrate Zoology; Comparative Anatomy
Date of Birth: 11 July 1904
Last Address: Khandari Road Crossing, Agra 282 002, India
***Deceased:** 1995

Education: Univ. of Mumbai: DSc 42.

Career: Birla college, Pilani: Head of Dept of Zoology 49; St John's College, Agra: Dept of Zoology

Scientific Work: Studied the biology of the house gecko and the systemtics of Indian snakes. Wrote numerous papers on snake anatomy, systomatics and phylogeny of *Hemidactylus flavivirdis*. Also studied other vertabrates on the vertebral column of frogs and their tails. Covered 298 species and erected two new genera of natricines.

Important Publications: **(1)** Conception the tail in the Craniata (1943) *Nature* **152**, 3849, 163–164. **(2)** *Handbook of the snakes of India, Ceylon, Burma, Bangladesh and Pakistan* (1984) Acad. of Zoology, Agra.

Memberships: President: Indian Botanical Soc.

Maheshwari, Panchanan*

Elected: 1934
Specialization: Embryology; Anatomy; Economic Botany
Date and Place of Birth: 9 November 1904; Jaipur, Rajasthan
Parent: Bijey Lal
Spouse and Children: Shanti; three *s*, three *d*
Last Address: Botany Department, Delhi University, Delhi 110 008, India
***Deceased:** 18 May 1966

Education: Allahabad Univ.: BSc 25, MSc 27, DSc 31.

Career: Ewing Christian College, Allahabad: Lecturer 28–30; Agra Univ.: Lecturer 30–31, Assoc. Prof. 31–37; Univ. of Allahabad: Prof. 37–39; Univ. of Dacca: Prof. 39–49; Delhi Univ., Dept of Botany: Prof. 49, Dean 54–56, Head 49.

Scientific Work: Early works include the development of gametophytes and embryo of *Boerhaavia diffusa* and the causes of sterility in *Albizzia lebbek*. Genera such as *Asphodelus, Urgenea, Hydrilla* and *Ophiopogon* were studied for their embryological features. Critical reviews on the types of embryo sacs and male gametophytes are examples of real depth. Brought to bear the importance of embryology to the sister disciplines of biology, namely physiology and genetics. For the first time, emphasis on the study of local flora was enthused. Has been called as the 'Father of modern embryology'.

Important Publications: **(1)** *An introduction to the embryology of angiosperms* (1950) McGraw Hill Book Co; New York. **(2)** Tetranucleate embryo sacs in angiosperms (1947) *Lloydia* 10, 1–18.

Memberships: Fellow: London Royal Soc. 65; INSA 35; NASI • Member: Royal Dutch Botanical Soc.; Kaiserliche Deutsche Akademie der Naturforscher Leopoldina; Indian Botanical Soc.

Awards & Distinctions: Sunder Lal Hora Memorial Medal 64 • Birbal Sahni Medal • McGill Univ., Canada: DSc hc.

Maheshwari, Satish Chandra

Elected: 1975
Position: INSA Hon. Sci., Univ. of Delhi South Campus, New Delhi
Specialization: Physiology and Biochemistry of Plant Growth and Development; Plant Molecular Biology
Date and Place of Birth: 4 October 1933; Agra, Uttar Pradesh
Parents: Panchanan Maheshwari and Shanti
Spouse: Nirmala
Address: U24A/10, Townshouse, Phase III, DLF City, Gurgaon, Haryana
Tel. (011) 2411 0221, (011) 2411 1208 (O), (0124) 406 8469 (R), Mobile: 98104 11082
email: satishcmaheshwari@hotmail.com

Education: Delhi Univ.: BSc Hons 52, MSc 54, PhD 58; .

Career: Delhi Univ.: Lecturer in Botany 54–61; Yale Univ.: SmithMundt-Fulbright Fellow for Postdoc Res. 59–60; California Inst., of Technol.: Postdoc Res. 60-61; Oxford Univ., Commonwealth Exch. Programme 66–67; Univ. of Delhi: Reader 61-66 Prof. 67; Harvard Univ., Homi Bhabha Fellow 73–74; Dean, Faculty of Interdisciplinary and Applied Sci., 91–92; Head, Dept of Plant Molecular Biology, 88–92; Programme Dir, DST Unit for Plant Cell and Molecular Biology 83–88; Head, Dept of Botany and Dir, UGC Centre for Advanced Studies 76–79.

Scientific Work: Contributions relate to molecular biology of plant growth and development as also tissue and cell culture and biotechnology. Developed (with Sipra Guha) anther culture technique for obtaining haploids. Has done extensive work on physiology of flowering in the family Lemnaceae, which has underscored the role of new plant growth regulators such as salicylic acid and catecholamines. Also contributed to the mechanism of phytochrome action and control of gene activity in plants by light.

Memberships: Fellow: INSA 78; NASI 79 • President: Indian Botanical Soc..

Awards & Distinctions: S S Bhatnagar Award 75 • J J Chinoy Memorial Gold Medal • Homi Bhabha Fellow 73–77 • Jawaharlal Nehru Fellow 80–81 • Birbal Sahni Gold Medal 80 • Goyal Foundation Prize 97 • JC Bose Medal 99 • Panchanan Maheshwari Centenary Lecture 2004.

Maitra, Pabitra Kumar*

Elected: 1975
Specialization: Biochemistry; Molecular Biology; Genetics
Date and Place of Birth: 1 November 1932; Majdia, Nadia, West Bengal
Parents: S C Maitra and S Maitra
Spouse: Zita Lobo
Last Address: Molecular Biology Unit, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005
***Deceased:** 4 September 2007

Education: Univ. of Calcutta: BSc, MSc, DPhil 52–60.

Career: TIFR, Bombay: Reader, Assoc. Prof., Prof., Sr Prof. 64; Univ. of Illinois, USA: Vis. Prof. 82–83; Univ. College, Cardiff 85.

Scientific Work: Developed extremely sensitive fluorometric methods to monitor the flux of glycolytic reactions and has used these techniques to determine the steps which control the *in vivo* rate of these reactions. Established the genetics of the glycolytic pathway in yeast and bacteria. Discovered two new enzymes of glycolysis in yeast.

Memberships: Fellow: INSA 80.

Awards & Distinctions: J C Bose Medal 92.

Maitra, Uday

Elected: 1998
Position: Prof., IISc, Bangalore
Specialization: Supramolecular Chemistry of Bile Acids; Synthesis and Properties of Bile Acid Analogs and Organo & Hydrogels
Date and Place of Birth: 8 November 1957; Bilaspur
Parents: Sunil Chandra Maitra and Manika
Spouse and Children: Samita; one s
Address: Department of Organic Chemistry, Indian Institute of Science, Bangalore 560 012, India
Tel: (080) 2360 1968, 2293 2690 (O), (080) 2360 1774 (R)
email: maitra@orgchem.iisc.ernet.in, maitrau@gmail.com, URL: http://orgchem.iisc.ernet.in/faculty/um

Education: Calcutta Univ.: BSc 79; IIT Kanpur: MSc 81; Columbia Univ., New York: MPhil, PhD 86

Career: Univ. of California: Postdoc Chemist 86–87; IIT Kanpur: Asst Prof. 88–89; IISc, Bangalore: Asst Prof. 89–95, Assoc. Prof. 95–2001, Prof. 2001–

Scientific Work: Research is primarily concerned with the utilization of abundant bile acids for developing new chemistry, and molecules with new and tailor-made properties. Used cholic and deoxycholic acids for asymmetric synthesis with selectivity approaching > 99%. Bile acids were also used to develop a class of flexible molecular tweezers for the binding of aromatic compounds and some molecules of biological relevance. A novel host-guest interaction mediated gelation process has been discovered.

Memberships: Fellow: INSA 2009 • Joint Secretary and Life Member: Chemical Research Soc. of India • Council member: Indian Assn of Chemistry Teachers.

Awards & Distinctions: IASc Assoc. 89–92 • Royal Soc. of Chemistry Grant for International Authors 97–98 • CRSI Bronze Medal 2000 • ISCA Millennium Medal, 2000 • S S Bhatnagar Prize 2001 • MRSI Award 2009.

Maiya, Bhaskar Gundmi*

Elected: 2001
Specialization: Bioinorganic Chemistry; Photochemistry; Supramolecular Chemistry
Date and Place of Birth: 20 June 1956; Airody, Karnataka
Parents: G Janardana Maiya and Radha
Spouse and Children: Amita; two *s*
Last Address: School of Chemistry, University of Hyderabad, Hyderabad 500046, India
***Deceased:** 22 March 2004

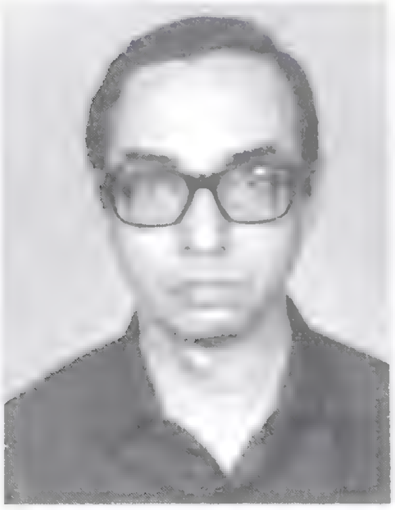
Education: Mysore Univ.: BSc. 77, MSc 79; IISc: PhD 86.

Career: TIFR: Res. Assoc. 86–87; Univ. of Houston: Res. Assoc 87–88; Univ. of Texas, USA: Postdoc Fellow 88–89; Univ. of Hyderabad: Lecturer 89–93, Reader 93–2001, Prof. 2001–04.

Scientific Work: Research contributions can be broadly classified into three major areas: biomimetic chemistry; photodynamic therapy (PDT) and new photonucleases. Designed and synthesized a variety of porphyrin and metallopolypyridyl based donor-acceptor compounds and elucidated the mechanistic details of the ultrafast energy-and electron transfer reactions occurring in these novel supramolecular assemblies. Extended this theme to the design of molecular devices with special efforts directed towards the fabrication of molecular photoswitches. Several new PDT agents, where an intracellular recognition element or a clinically used chemotherapeutic drug is covalently linked to a porphyrin have been designed and tested for their *in vitro* photodynamic activity. In attempts to build new DNA photo footprinting agents, investigated the DNA binding and photonuclease activity of rationally-designed metallointercalator species.

Awards & Distinctions: MRSI Bronze Medal.

Majumdar, Chanchal Kumar*



Elected: 1976
Specialization: Statistical Physics; Condensed Matter Physics; Electron States and Magnetic Properties
Date and Place of Birth: 11 August 1938; Calcutta, West Bengal
Parents: Majumdar Nirmal Kanti and Sita
Spouse and Children: Utpala; one *s*, one *d* (Rupak, Ruchira)
Last Address: Satyendranath Bose National Centre for Basic Sciences, DB 17, Sector 1, Salt Lake, Calcutta 700 064, India
***Deceased:** 20 June 2000

Education: Calcutta Univ.: BSc 58, MSc 60; SINP, Calcutta: Assoc. 61; Univ. of California: PhD 65.

Career: SINP, Kolkata: Res. Fellow 60–61; Carnegie Inst. of Tech., Univ. of Manchester: Postdoc Res 61–65; TIFR: Fellow 66, Reader 69–75, Assoc. Prof. 75; Calcutta Univ.: Palit Prof. of Phys. 75–82; Indian Assoc. for the Cultivation of Sci., Magnetism/Solid State Phys Dept: Head 82–87; S N Bose National Centre for Basic Sci., Calcutta: Dir 87–99; Indian Statistical Inst.: INSA Sr Sci. 99–2000.

Scientific Work: Worked on the effective mass of positrons in metals, the two dimensional angular correlation of positron annihilation radiation, antiferromagnetic model with known ground state, the three-magnon bound state equation, the stress relaxation in soda-lime glass, the critical isotherm of the Ising model and of the Lennard–Jones gas, corrosion in iron and determination of Fe^{2+}/Fe^{3+} ratio in iron minerals by Mossbauer effect, and effect of alpha irradiation on high temperature superconductors. With Kohn proved a theorem (know as the Kohn–Majumdar theorem) on the continuity between the bound and unbound states in a non-interacting Fermi gas enclosed in a spherical box containing a spherically symmetric potential at the centre. Formulated the three-magnon bound state problem using Faddeev's three-body equations. The integral equation was solved numerically for both isotropic and longitudinally anisotropic Heisenberg Hamiltonians. Later, for isotropic case, the equation was solved in an exact, analytic manner and the physical eigenfunction as well as the eigenvalue of the three-magnon bound state problem were completely determined.

Important publications: **(1)** Positronium formation in interacting electron gas (1970) *Progr. Theor. Phys. Jpn* **44** , 26–37. **(2)** Behaviour of positions in solids (1970) *J. Math. Phys. (Madras)* **4,** 109–159 **(3)** A simple derivation of the three-magnon bound state equation (1973) *Pramana – J. Phys.* **1,** 135–146. **(4)** Solution of the three-magnon bound state equation (1976) *J. Math Phys.* **17,** 474–477.

Memberships: Fellow: INSA 82; New York Acad. of Sci.; American Physical Soc.; Indian Physics Assn; Intl Assn of Mathematical Physics.

Awards & Distinctions: S S Bhatnagar Award 76 • Asiatic Soc. M N Saha Medal 78 • P A Pandya Award 79 • INSA M N Saha Award 83 • INSA S N Bose Medal 89 • ISCA Santanu Ghosh Medal 91.

Majumdar, Girija Prasanna*

Elected: 1944
Specialization: Botany; Plant Anatomy
Date and Place of Birth: 18 February 1894; Gopalnagar, Bangladesh, (old Bengal)
Parents: Krishendra Narayan Majumdar and Kumud Kamini Devi
Spouse and Children: Charuprova Devi (deceased) and Sudha Devi; two *s*, two *d*
Last Address: 19, Ekdalia Palace, Calcutta 700 019, India
***Deceased:** 21 November 1959

Education: Univ. of Calcutta: BSc 13, MSc 15, BA 16, BL 17; Univ. of Leeds: PhD 40.

Career: Presidency College, Calcutta, Botany Dept: Demonstrator 13–15, Lecturer and Prof. 15–28,Prof. 40–49; Univ. of calcutta: Prof. 28-40; Govt College, Darjeeling, Dept of Botany: Prof. 49–51; Univ. of Dacca, Dept of Botany: Prof. and Head 51.

Scientific Work: Carried out extensive research on the genesis and development of botany and agriculture in ancient India and contribution was unique in the country. Did research on the apical organization of plant organs, X-ray diffraction pattern of collenchyma cells and other aspects of plant anatomy. Also made extensive researches on the history of botany. After collecting data from many Sanskrit texts, compiled an authoritative account of botanical sciences in ancient India.

Memberships: Fellow: INSA 43 ; Indian Botanical Soc.; Pakistan Acad. of Sci.

Majumder, Hemanta Kumar

Elected: 2006
Position: Sci., IICB, Kolkata
Specialization: Biochemistry; Molecular Biology; Parasitology
Date and Place of Birth: 5 May 1950; Kolkata, West Bengal
Parents: Gunendra Nath Majumder and Umarani
Spouse and Children: Chaitali; two *d*
Address: Indian Institute of Chemical Biology, 4, Raja SC Mullick Road, Jodavpur, Kolkata 700 032, India
Tel. (033) 2412 3207 (O), (033) 2359 1532 (R), Mobile: 98319 26491
email: hkmajumder@iicb.res.in, hemantamajumder@yahoo.co.in

Education: Calcutta Univ.: BSc 68, MSc 70, PhD 75.

Career: Albert Einstein College of Medicine, New York, USA: Post-doc 76-79; IICB: Sci. 81–.

Scientific Work: Made significant contribution in *Leishmania* research with special reference to identification and characterization of different forms of DNA topoisomerases of *Leishmania*. Towards development of therapeutic agents targeted to topoisomerases, isolated and characterized several plant derived compounds as potent antileishmanial agents. Has shown that *Leishmania* topoisomerase IB is an unusual bi-subunit enyme where the large subunit functions as the molecular steer to navigate the the enzyme to its cellular DNA targets. The group has also identified the minimum interacting domains of the bi-subunit topoisomerase which constitute the functionally active enzyme. In the post genomic perspective, the quest of programmed cell death mechanism in kinetoplastid parasites lies in the identification of cell death executor proteins. Identified and characterized several effector molecules that constitute a DNA degradesome unique to this parasite.

Important Publications: **(1)** N-terminal region of the large subunit of *Leishmania donovani* bi-subunit topoisomerase I is involved in DNA relaxation and interaction with smaller subunit (2005) *J. Biol. Chem.* **280**, 16, 16335–16344. **(2)** Apoptosis is induced in leishmanial cells by a novel protein kinase inhibitor withaferin A and is facilitated by apoptotic topoisomerase I DNA complex (2007) *Cell Death Differ. Cell Death Differ.* **14**, 2, 358–367. **(3)** Amino acids 39–456 of large subunit and 210–262 of small subunit constitute the minimal, functionally interacting fragments of the unusual heterodimeric topoisomerase IB of *Leishmania* (2007) *Biochem. J.* **409**, 2, 481–489. **(4)** The large subunit of *Leishmania* topoisomerase I functions as the 'molecular steer' in type IB topoisomerase (2008) *Mol. Microbiol.* **67**, 1, 31–46. **(5)** The caspase-independent algorithm of programmed cell death in *Leishmania* induced by baicalein: The role of LdEndoG, LdFEN–1 and LdTatD as a DNA 'degradesome' (2008) *Cell. Death Differ.* **15**, 10, 1629–1640.

Memberships: Fellow: NASI 95; INSA; West Bengal Acad. of Sci. & Tech • Working Chmn: West Bengal State Council of Science and Technology.

Awards & Distinctions: Dr. P C Sengupta Medal 2004 • Prof. B K Bachhawat Memorial Lecture Award 2008 • Prof. Jnan Chandra Ghosh Memorial Award 2007.

Majumder, Partha Pratim

Elected: 1998
Position: Prof., ISI, Kolkata
Specialization: Biostatistics; Human Genetics; Population Genetics
Date and Place of Birth: 6 September 1952; Patna, Bangladesh
Parents: Panchanan Majumder and Santona
Spouse: Amita
Address: Human Genetics Unit, Indian Statistical Institute, 203, B T Road, Kolkata 700 108, India
Tel. (033) 2575 3209, (033) 2575 3212 (O), (033) 2565 4314 (R)
email: ppm@isical.ac.in

Education: ISI, Calcutta: BStat 74, MStat 75, PhD 82.

Career: Univ. of Texas, Houston: Sr Res. Assoc. 80–82; Res. Instructor 82–83; ISI, Calcutta: Lecturer 83–86, Assoc. Prof. 87–91, Prof. 91–; Univ. of Pittsburgh, USA: Vis. Prof. 89–91; Jawaharlal Nehru Centre for Advanced Scientific Res: Hon. Prof. 2008–.

Scientific Work: Made significant contributions to human genetics and evolution using molecular genetic, statistical and anthropological methods. Devised innovative paradigms and statistical methods for solving biological problems related to modes of inheritance of complex human traits and mapping genes underlying such traits. Also made important contributions to the understanding of the processes of peopling of India and on the genetic structures of Indian ethnic groups.

Important Publications: **(1)** Signatures of natural selection are not uniform across genes of innate immune system, but purifying selection is the dominant signature (2009) *Proc. Natl. Acad. Sci., USA*, **106**, 7073–7078. **(2)** Genomic inferences on peopling of south Asia (2008) *Curr. Opin. Genet. Dev.* **18**, 280–284. **(3)** Using HapMap data: a cautionary note (2007) *Eur. J. Hum. Genet.* **15**, 246–249. **(4)** Polarity and temporality of high-resolution Y-chromosome distributions in India identify both indigenous and exogenous expansions and reveal minor genetic influence of Central Asian pastoralists (2006) *Am. J. Hum. Genet.* **78**, 202–221. **(5)** Globally, CYP1B1 mutations in primary congential glaucoma are strongly structured by geographic and haplotype backgrounds (2006) *Invest. Ophthalmol. Vis. Sci.* **47**, 43–47.

Memberships: Fellow: INSA 2001; NASI 2006 • Member: Human Genome Organization • Exec. Committee Member: Intl Human Genome Diversity Project • Founder Member: Intl Genetic Epidemiological Soc.

Awards & Distinctions: Ranbaxy Research Award in Applied Medical Sciences 2000 • ISCA/CSIR New Millennium Science Medal 2000 • Shri Om Prakash Bhasin Award in Biotechnology 2001 • G D Birla Award for Scientific Research 2002.

Malhotra, Des Raj*

Elected: 1952
Specialization: Chemical and Metallurgical Engineering
Date and Place of Birth: 4 October 1899; Jalalpur, Punjab
Parents: Gobind Sahai and Prem Kaur
Children: seven *s*, one *d*
Last Address: White House, Golf Road, Ajmer 305 001, India
***Deceased:** 1 November 1983

Education: Harvard Univ., USA: SB 23; Univ. of Brussels, Belgium: DSc 30.

Career: Tata Iron and Steel Company: Sr Metallurgist 25–31; Western Railway: Chief Chemist & Metallurgist, Chmn 31–54; Govt of India: Industrial Adviser 54–55; Sandur Manganese & Iron Ore Limited: Chief Tech. Consultant 55–56; Railway Service Commission, Bombay.: Member 56–57; Sepulchre Bros. (India) Private Limited: Technical Manager and Chief Engineer 57–59; Board of Governors, Malviya Regional Engineering College, Jaipur: Member 65–70; All India Board of Technical Studies in Engg & Technol.: Consulting Chemical & Metallurgical Engineer 72

Scientific Work: Did extensive work on the development of alloys, for example silicon bronze, silvery bronze-bearing alloys and stainless steel. Held patents on the manufacture of alloys which had been developed.

Memberships: Fellow: INSA; Institution of Engineers; London Institute of Metallurgists; Institute of Chemical Engineers.

Awards & Distinctions: London Iron and Steel Institute Carnegie Research Award 30 • Invention Promotion Board Award 69.

Malhotra, Kailash Chandra

Elected: 1986
Specialization: Population Genetics; Human Ecology
Date and Place of Birth: 25 October 1938; Risalpur, Pakistan
Parents: Jagdish Lal and Sitawanti
Spouse and Children: Dolly; three *d*
Address: 385, Sector 29, Noida 201 301, India
email: kcmalhotra2001@yahoo.co.in

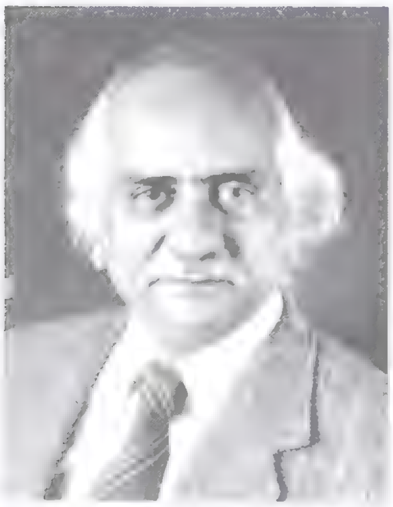
Education: Univ. of Delhi: MSc 60; Poona Univ.: PhD 66.

Career: Poona Univ., Poona: Lecturer 65–68; Deccan College, Poona: Chief Project Investigator 68–69; ISI, Calcutta: Sr Lecturer 69–76, Assoc. Prof. 76–82, Prof. 82–2002.

Scientific Work: Carried out extensive studies on morphological, biochemical genetic markers and dermatoglyphics, which have helped in our understanding of the peopling of India, evolution of social organizations, and affinities among castes and tribes. Demonstrated niche diversification among sympatric endogamous communities. Studied the ecology of pastoral and nomadic populations, as well as of the cultural dimensions of the ecological problems. Has carried out extensive studies in West Bengal on the issue of deforestation, natural regeneration and people's participation in the management of natural resources.

Memberships: Fellow: INSA 93; Intl Assn of Human Biologists; Indian Anthropological Assn; Intl Dermatoglyphic Assn; Indian Anthropological Soc.

Malhotra, Prince Kumar*



Elected: 1985
Specialization: High Energy Physics; Cosmic Ray Physics
Date and Place of Birth: 20 April 1935; Jammu Tawi, Jammu and Kashmir
Parents: Mohanlal Malhotra and Lajwanti
Spouse and Children: Mridula; two *s*
Last Address: Bubble Chamber Group, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005, India
***Deceased:** 7 March 1992

Education: Panjab Univ.: BSc Hons 55, MSc Hons. 56; Bombay Univ.: PhD 64.

Career: TIFR, Bombay: Res. Asst 56–61, Res. Fellow 61–64, Fellow 64–70, Reader 70–75, Assoc. Prof. 75–83, Prof. 83–92; Northwestern Univ.: 65–67; DESY, Hamburg: Vis. Sci. 67; Argonne Natl Lab: Vis. Sci. 72; CERN, Geneva: Vis. Sci. 74, 78, Sci. Assoc. 75–76.

Scientific Work: Work on cosmic ray jets and formulation of the dependence of multiplicity with energy fetched wide international recognition. At North Western University, carried out studies of negative kaon particle interacting with helium nuclei. Studied general characteristics of particle production and transverse spectra of the mesons in hadronic collisions; showed that a large fraction of pions and kaons are decay products of higher mass resonances. Showed that the strange particle yield is less by about a factor of 3 compared to the non-strange particles and this suppression factor is nearly independent of the incident beam energy. Also worked on the experiment with electron-positron collisions leading to the production and decay of gauge vector boson Zo. Instrumental in organizing bubble chamber analysis activities in several Indian universities.

Malhotra, Sardari Lal*

Elected: 1966
Specialization: Epidemiology; Internal Medicine; Paediatrics
Date and Place of Birth: 5 December 1919; Qadirabad (now Pakistan)
Parents: L Prakash Chandraji Malhotra and Viran Devi
Spouse and Children: Gabriella Toresius; one *s*, one *d*
Last Address: IN CE, via Geneva 9, 3 4121 Trieste, Italy
***Deceased:** 10 September 2004

Education: Punjab Univ.: BSc 39, MBBS 44; London Univ.: MRCP 47, FRCP 67.

Career: Govt College, Lahore: 37–39; Mayo Hospital, Lahore: House Physician 44–45; K E Medical College, Lahore: Res. Scholar 39–44; Irwin Hospital, New Delhi: House Surgeon 45; Irwin Hospital & Lady Hardinge Medical College, New Delhi: Hon. Physician and Lecturer in Medicine 47; Univ. of Lucknow, Dept of Paediatrics: Sr Lecturer-in-Charge 47–48; Govt of India, Ministry of Railways: District Medical Offr; Indian Railways: In-Charge of Clinical & Preventive Medicine, Patient Care, Medical Administration 48–57; Nuffield Foundation, London: Nuffield Fellow 51–53; Rochford General Hospital: Sr Medical Registrar and Resident Consultant in Medicine 53; Govt of India: Chief Medical Offr and Head of Medical Dept on Indian Railways 57–77; Inst. of Postgraduate Medical Education and Res., Chandigarh: Vis. Prof. of Community Medicine and Epidemiology 68; Univ. of Garyounis, Benghazi: Prof. of Social and Preventive Medicine and Family Practice 81–83; Univ. of Rome, Italy, Central Inst. of Medical Res.: 84–85; Univ. of Maiduguri, Nigeria: Prof. of Community Medicine and Epidemiology 88–89.

Scientific Work: Studied the distribution and aetiology of duodenal ulcer, and ischaemic heart disease. Carried out considerable amount of clinical and laboratory research about the incidence of many diseases, in particular peptic ulcer, gall stones, diabetes, coronary heart disease and carcinoma of the bowel.

Memberships: Fellow: Indian Acad. of Medical Sci.; London Royal College of Physicians • Member: Presidium of 5th World Congress on Hygiene, Italy; British Medical Assn.

Malik, Satish Kumar

Elected: 1994
Position: Vis. Prof., ICCMP, Univ. of Brasilia, Brazil
Specialization: Rare Earth Magnetism; Superconductivity; Strongly Correlated Electron Systems
Date and Place of Birth: 22 February 1943
Parents: K L Malik and Sushila Devi
Spouse and Children: Sushma; one *s*, one *d*
Address: Centro Internacional de Fisica da Materia Condensada, (CIFMC) ICCMP, Universidade de Brasilia,
C. Postal 04513,70904-970, Brasilia DF, Brazil
Tel. (+55-61) 3307 2571/24 (O), Mobile: (+55-61) 8495 0369
email: skm@tifr.res.in

Education: Delhi Univ.: BSc 62; Bombay Univ.: MSc 67, PhD 73.

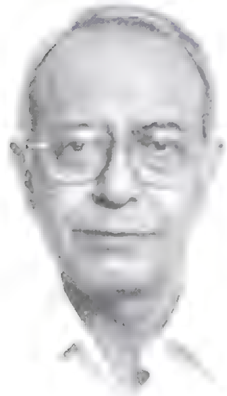
Career: TIFR, Bombay: Fellow 71–78, Reader 78–86, Assoc. Prof. 86–91, Prof. 91–2007; ICCMP: Vis. Prof. 2007–.

Scientific Work: The observation of magnetism in $CeRh_3B_2$ with highest known T_M (120 K) among this class of compounds is unique and has created great excitement. Work on ternary borides revealed unusual valence changes, charge ordering and heavy fermion behaviour. Evolution of magnetic state from valence fluctuating state and of superconducting state from magnetic state has been shown implying common underlying interactions giving rise to such contrasting behaviour. The discovery of several new valence fluctuating systems has made TIFR a leading laboratory in this field. Has made significant studies in high temperature superconductors and is an outstanding physicist in our country.

Memberships: Fellow: INSA 95; Japan Soc. for Promotion of Sc. Fellowship 92.

Awards & Distinctions: ICSC Superconductivity Prize 93.

Mallik, Asok Kumar



Elected: 1997
Specialization: Vibration Engineering; Kinematics; Dynamics of Machines
Date and Place of Birth: 11 February 1947; Kolkata
Parents: Jamini Mohan Mallik and Shobha Rani
Spouse and Children: Kaberi; one *d* (Aditi)
Address: P31, CIT Road, Scheme VI (MS 6), Kolkata 700 054, India
email: akmallik@iitk.ac.in

Education: Calcutta Univ.: BE 67, ME 69; IIT Kanpur: PhD 73.

Career: IIT Delhi: Lecturer 70–71; IIT Kanpur: Lecturer 71–75, Asst Prof. 75–82, Prof. 82–2009, S Sampath Chair Prof. 2006–09; Inst. of Sound and Vibration Res., Southampton, England: Commonwealth Scholar (Vis. Fellow) 1974–75; TH Aachen, Germany: Alexander von Humboldt Fellow 83–84, 90, 96; TH Darmstadt, Germany: Alexander von Humboldt Fellow 2001, 2004.

Scientific Work: Has done extensive research in various fields of vibration engineering, including damping of materials and structures, pipeline vibration and stability, vibration of periodic and sandwich structures, vibration of nonlinear and autoparametric mechanical systems and vibration control. Results obtained have been included in standard international texts, monographs and handbooks of vibrations. Reported one of the earliest experimental works on chaos in nonlinear mechanical systems. Work on cyclic periodic structures, nonlinear periodic structures has given rise to new areas of research. Authored several texts in the areas of kinematics and dynamics of machinery and the first textbook on vibration control. Developed more than eighty fully articulated transparent models of mechanisms that have added a new dimension to the teaching of kinematics of mechanisms.

Important Publications: **(1)** *Principles of vibration control* (1990) Affiliated East-West Press (P) Ltd New Delhi. **(2)** *Kinematic analysis and synthesis of mechanisms* (1994) CRC Press, Boca Raton, Florida. **(3)** *J. Appl. Mech.* (Trans. ASME) (1983) **50**, 657–668. **(4)** *J. Appl. Mech.* (Trans. ASME) (1984) **51**, 159–163. **(5)** *Phys. Rev. E* (1994) **49**, 4950–4954.

Memberships: Fellow: INAE 96; INSA 2001; NASI 2005.

Awards & Distinctions: Distinguished Teacher Award of IIT Kanpur 2004 • Calcutta Univ. Forbes Medal • Alexander von Humboldt Fellowship.

Malurkar, Sreenivas Laxminarasimha*

Elected: 1934
Specialization: Mathematical Physics; Meterology; Geophysics
Date and Place of Birth: 15 August 1903; Malur, Karnataka
Parents: Laxminarasimhachar and Nacchiaramma
Spouse and Children: Shanthamma; one *s*, two *d*
Last Address: Meteorological Office, Poona, India
***Deceased:** 26 April 1984

Education: Univ. of Cambridge, UK: BSc 23, MSc 29.

Career: Maharaja's College, Mysore: Central College, Bangalore 30; India Meteorol. Dept, Pune: 30–35; Forecasting centres, Agra 35–36, Karachi 38–42, Pune 42–45, Allahabad 45–47; Colaba Observatories, Bombay: Dir 48–59; IISc, Bangalore: Dir Res. Lab. 59–61; Goddaoxl Space Res. Centre: Res. Scholar 61–63; CSIR Emeritus Sci. 64–69.

Scientific Work: Main interests were: changes in surface tension of solutes and the refractive indices of gases the secondary spectrum of hydrogen; high vacuum techniques and the Pirani gauge; the atomic structure of helium; atmospheric electricity and the charge/discharge of a quadrant electrometer.

Memberships: Member: Executive Committee, Assn of Atmospheric Electricity and Terrestrial Magnetism; Intl Union of Geodesy and Geophysics.

Mandal, Asit Baran

Elected: 1995
Position: Director, CLRI, Chennai
Specialization: Physical and Biophysical Chemistry; Organised Self-Assemblies
Date and Place of Birth: 13 January 1952; Balashpur, West Bengal
Parents: Kishorimohan and Manomohini
Spouse and Children: Sudevi; one *s* (Abhishek)
Address: Central Leather Research Institute, Chennai 600 020, India
Tel. (044) 2491 0897 (O), (044) 2491 0846 (O) (R), Mobile: 99401 21703
email: abmandal@hotmail.com, abmandal@clri.res.in; URL: http://www.clri.org/staff/prof_mandalprofile.htm

Education: Burdwan Univ.: BSc Hons 72; Jadavpur Univ., Calcutta: MSc 76, PhD 81.

Career: Nalhati Hariprasad H S School, West Bengal: Asst Teacher 73–74; Jadavpur Univ., Calcutta: Chem. Res. Fellow 76–78; ONGC: Jr Chemist 78–79; CLRI, Madras: Chemical Lab. Sci. 79–; Sr Asst Dir 91–96, Sci. 96–2006; Dir 2006–; Univ. of Saskatchewan, Canada, Dept of Chem.: Res. Assoc. 88–89.

Scientific Work: One of the most important contributors to the understanding of micellar systems in India. Has modified Huggins–Thomas equation by including a parameter based on both experimental and theoretical investigations and this has led to the equation now being termed Huggins–Thomas–Mandal equation. Important contributions include: (a) New experimental methodologies for characterization of micellar and reverse micellar systems involving collagens, peptides, drugs, tanning materials, macromonomers and polymeric systems. (b) Design rationale for synthesis of mono-disperse polymers. (c) Micellar systems with respect to electrochemistry, thermodynamics, relaxation kinetics, hydrogen-bonding, structure, geometry, conformations, molecular dynamics, solubilization, location, solvation behaviour, monolayer aspects, nanomaterials, environmental science and diffusional phenomena are quite extensive and cited well by many workers. Has made quantification of several parameters in micellar chemistry feasible through applications of rigorous techniques viz. self-diffusion measurements by cyclic voltammetry , chronocoulometry, square-wave voltammetry and FT-PGSE NMR techniques to determine hydrodynamic radius of both hydrophilic and hydrophobic regions of the micelles. Path-breaking contributions to surface and colloid sciences are valuable and noteworthy.

Important publications: **(1)** Cyclic voltammetric technique for the determination of the critical micelle concentration of surfactants, self-diffusion coefficient of micelles and partition of an electrochemical probe (1991) *J. Phys. Chem.* **95**, 9008–9013. **(2)** Self-diffusion studies on ω-methoxy polyethylene glycol macromonomer micelles by using cyclic voltammetric and Fourier transform pulsed gradient spin-echo magnetic resonance techniques (1995) *Langmuir The ACS J. Surf. Colloids* **11**, 1464–1467. **(3)** Synthesis, characterization, and micelle formation in and aqueos solution of methoxypoly(ethylene glycol) macromonomer, homopolymer, and graft copolymer (1993) *Macromolecules* **26**, 4083–4088. **(4)** The shape, size, aggregation, hydration, correlation times, and thermodynamic studies on macromonomer micelles (1996) *J. Chem. Phys.* **105**, 9649–9656. **(5)** Self-assembling characteristics of a new non-ionic Gemini surfactant (2004) *J. Phys. Chem.* **B108**, 8806–8816. (6) A new micelle forming peptide viz., TFA.Tyr=Gly-Phe-Ala-OBz tetrapeptide in water: Aggregation, hydrogen bonding, conformation and thermodynamic studies (1993) *J. Chem. Soc. Chem. Commun.* 237–239.

Memberships: Fellow: FRSC; Indian Chemical Soc. • Member: Soc. of Biological Chemists; Indian Soc. of Surface Sci. Technol.; Chem. Res. Soc., India.

Awards & Distinctions: L M Yeddanapally Memorial Award, Indian Chemical Soc. 93 • Tamil Nadu Scientist Award, Tamil Nadu State Council for Science and Technology 94 • ISCA B C Deb Memorial Award 96 • All India Business Dev. Assn • Bhartiya Shiksha Award 2007 • ISF Award 2008 • CSIR Tech. Prize 2006.

Mandal, Chitra

Elected: 2006
Position: Dy Dir, IICB, Kolkata
Specialization: Glycobiology; Immunobiology; Glycoimmunology
Date and Place of Birth: 15 September 1951; Bankura, West Bengal
Parents: Kamal K Mandal and Puspa
Spouse and Children: Chhabinath Mandal; one *s* (Chitradip)
Address: Infectious Disease and Immunology Division, Indian Institute of Chemical Biology, 4,
Raja S C Mullick Road, Jadavpur, Kolkata 700 032, India
Tel. (003) 2429 8861 (O), (033) 2416 6609 (R), Mobile: 98310 36964
email: cmandal@iicb.res.in

Education: Univ. of Burdwan: BSc 70, MSc 72; IISc: PhD 78.

Career: Univ. of Pennsylvania, USA: Postdoc 78–81; IICB: Sci. 81–; Texas A & M Univ.: Vis. Sci. 89–92.

Scientific Work: Made outstanding contributions in medical science both in applied and basic research, which encompasses mainly the fields of glycobiology and immunochemistry. Main theme of the research group is to understand the mystery of glycosylation of biomolecules and their potential applications. Excellences in original research work are: Role of differential sialylation in maturation of hematopiotic stem cell, adhesion process, cell signalling mechanism and their potential application in immunotherapy of childhood acute lymphoblastic leukemia (ALL). Application of newly-identified disease-associated O-acetylated sialoglycoproteins/glycolipids and antibodies for monitoring patients and their role in the survival of leukemic cells. Establishment of glycosylated molecular variants of human C-reactive proteins for possible clinical application as disease-specific biomarker. Demonstration of modified sialoglycoproteins exclusively induced on erythrocytes for diagnosis and prognosis of visceral leishmaniasis patients. Immunological role of such differential glycosylation on *Leishmania* parasites as virulent factor and their survival in host. Establishment of disease-associated molecular variants of human C-reactive protein (CRP) which could be used as diagnostic marker.

Important Publications: (1) Down-regulation of membrane-bound Neu3 is negatively correlated with disease progression and associated with apoptosis suppression of lymphoblasts in childhood acute lymphoblastic leukemia (2009) *Intl J. Cancer.* Jul 8. [Epub ahead of print] PMID: 19588508. **(2)** Apoptotic effects of mahanine on human leukemic cells are mediated through cross talking between APo-1/Fas signaling with Bid protein and via mitochondrial pathways (2009) *Biochem. Pharmacol. (in press).* **(3)** Increased interferon gamma production by peripheral blood mononuclear cells in response to stimulation of over expressed disease-specific 9-O-acetylated sialoglycoconjugates in children suffering from acute lymphoblastic leukemia (2005) *British J. Hematol.* **128,** 35–41. **(4)** Variable degree of alternative complement pathway-mediated hemolysis in Indian visceral leishmaniasis induced by differential expression of 9-*O*-acetylated sialoglycans (2004) *J. Infect. Dis.* **189,** 1257–1264. **(5)** Antibodies directed against O-acetylated sialoglycoconjugates accelerate complement activation in *Leishmania donovani* promastigotes (2004) *J. Infect. Dis.* **190,** 2010–2019.

Memberships: Fellow: NASI 2004; TWAS; FAMS.

Awards & Distinctions: P B Rama Rao Memorial Award • Chandaben Mohanbai Patel Industrial Res. Award for Women Scientists • ICMR Kshanika Oration Award • DBT Biotech Product and Process Development and Commercial Award • Sr. Sci. Oration Award, Indian Immunology Soc. 2008.

Mandal, Nibir

Elected: 2006
Position: Prof., IISER, Kolkata
Specialization: Structural Geology; Tectonics
Date and Place of Birth: 6 November 1963; Raghunathganj, West Bengal
Parents: Mahadev Mandal and Renuka
Spouse and Children: Jhumpa; one *s* (Nirman)
Address: Indian Institute of Science Education & Research, Mohanpur Campus,
Post BCKV Main Campus, Mohanpur 741 252, India
Tel. (033) 2334 4118 (O), (033) 2462 6528 (R)
email: nibirmandal@hotmail.com, nibirmandal@yahoo.co.in

Education: Jadavpur Univ.: BSc Hons 84, MSc 87, PhD 92.

Career: Allahabad Univ.: Lecturer 92; Jadavpur Univ.: Lecturer 92–98, Reader 98–2005, Prof. 2005–07; IISER-K: Prof. 2007–; Hokkaido Univ.: Vis Sci. 95–96.

Scientific Work: Works on tectonic structures of varying scales using theory and experiments. Has developed kinematic models to enumerate the curvilinear trajectories of syntectonic porphyroblasts as a function of their rotation and growth rates. Similarly, has shown different types of particle motion on faults involving both rotation and translation. Using experimental models, the diverse modes of interference have been explained, considering the mechanics of buckling in stiff layers with varying cylindrical curvatures. With the help of a continuum model the study gives an estimation of transpressive movement possible in planar ductile shear zones. Recent work has dealt with hydrodynamic modelling of flow patterns around rigid as well as deformable objects floating in viscously flowing rocks. Has shown the effects of mechanical interactions among suspended particles in composite rocks. Using theory and experiments, has also shown the process of shear localization in heterogeneous rocks. Current work involves experimental studies on the mechanics of thrusting in mountain belts, and shear localization at elevated pressure and temperature.

Important Publications: **(1)** Boundinage in homogeneous foliated rocks (1989) *Tectonophys.* **170**, 151–158. **(2)** Rotation, offset and separation of oblique-fracture (rhombic) boudins: Theory and experiments under layer-normal compression (1991) *J. Structural Geol.* **13**, 349–356. **(3)** Modes of superposed buckling in single layers controlled by initial tightness of early folds. (1992) *J. Structural Geol.* **14**, 381–394. **(4)** Evidence of nonlinear relationship between fracture spacing and layer thickness (1994) *J. Structural Geol.* **16**, 1275–1281. **(5)** Numerical modeling of heterogeneous flow fields around rigid objects with special reference to particle paths, strain shadows and foliation drag (2001) *Tectonophys.* **330**, 177–194.

Memberships: Member: PAC; DST.

Awards & Distinctions: IASc Assoc. 92–97; INSA Young Scientists Award 92 • JSPS Fellowship 95 • DST BOYSCAST Fellowship 96 • GSI K Naha Memorial Award • S S Bhatnagar Prize 2005.

Mandal, Nitai Chandra

Elected: 1993
Specialization: Molecular Genetics; Molecular Biology of Prokaryotes
Date and Place of Birth: 12 July 1938; Madhubanpur, West Bengal
Parents: Sashibhusan and Satyabala
Spouse and Children: Bharati; one *s*, one *d* (Snehansu, Sujata)
Address: E-5, Digantika, AH Block, Sector II, Salt Lake, Kolkata 700 091, India
Tel. (033) 2359 1356 (R)
email: mandalnc2003@yahoo.com

Education: Calcutta Univ.: BSc 58, BSc Hons 59, MSc 62, PhD 69.

Career: Banamali College, Bengal: Lecturer 62–64; Calcutta Univ., Dept of Applied Chem., Calcutta: Res. Fellow 64–65; Bose Inst., Calcutta: Res. Scholar 65–70, ICMR Supernumerary Res. Cadre Offr 73–74, Lecturer 74–78, Reader 78–86, Prof. 86–2000, CSIR Emeritus Sci. 2000–03; Albert Einstein College of Medicine, NY, Dept of Molecular Biology: Postdoc Fellow 70–72; USC School of Medicine, Los Angeles, Dept of Microbiology: Res. Assoc. 72–73; NIH, USA: Vis. Sci. 87–89.

Scientific Work: Worked on inositol phosphate metabolism and discovered the enzyme phospho-inositol kinase from germinating mung bean seeds. Worked extensively on host-virus interaction with a special emphasis on the involvement of host protein in bacteriophage Q beta RNA replication and on lambda polylysogeny. Elucidated the molecular mechanisms of regulation of the establishment of polylysogeny by lambda N–CI-phage and maintenance of 20–25 copies of the derepressed prophages in those polylysogenes. Discovered that the product of the replication gene P of lambda at its elevated level of expression is lethal to *E. coli,* where an interaction of P with an essential component the DNA initiator protein DnaA of the host is involved. This interaction also initiates the switch-over of lambda early replication to late replication. Studied genetically as well as biophysically on the structure and function relationship of the lambda repressor. Worked on the role of DNA-looping in the negative regulation of the gal operon by gal repressor in *E. coli.* Studied the regulation of the expression of galactokinase gene in mycobacteria and on the temporal regulation of gene expression during the developmental growth of the temperate mycobacteriophage L1.

Important Publications: **(1)** Studies on polylysogens containing lambda N–CI-prophages. I. Control of synthesis and maintenance of a large number of integrated lambda genomes (1982) *Virology* **118**, 439–448. **(2)** DNA looping in cellular repression of transcription of the galactose operon (1990) *Genes and Development* **4**, 410–418. **(3)** Isolation, characterization and mapping of temperature-sensitive mutations in the genes essential for lysogenic and lytic growth of the mycobacteriophage L1 (1993) *Virology* **194**, 166–172. **(4)** The P gene-mediated host (λ) mutations that make *Escherichia coli* resistant to lethality is located within the DNA initiator gene DnaA of the bacterium (2005) *J. Biochem. Mol. Biol.* **38**, 89–96. **(5)** The bacteriophage lambda DNA replication protein P inhibits the oriC DNA- and ATP-binding functions of the DNA replication initiator protein DnaA of *Escherichia coli* (2005) *J. Biochem. Mol. Biol.* **38**, 97–103.

Memberships: Fellow: NSAI 93; INSA 94 • Member: Indian Soc. of Biological Chemists.

Awards & Distinctions: Calcutta Univ: Gold Medal and Prize 62 • P B Rama Rao Memorial Award 91 • Bose Institute Foundation Day Memorial Award 95.

Mande, Chintamani

Elected: 1975
Specialization: X-ray Spectroscopy; Solid State Physics
Date and Place of Birth: 28 October 1925; Nagpur, Maharashtra
Parents: A B Mande and Ramabai
Spouse and Children: Latika; one *s*, one *d* (Shekhar, Veena)
Address: S/29, Bharat Nagar, Nagpur 440 001, India
Tel. (0712) 253 2407 (R), Mobile: 98501 50633
email: c_mande@hotmail.com

Education: BHU: MSc 47; Allahabad Univ.: DPhil 52; Paris Univ.: DSc 58.

Career: Univ. of Allahabad: Lecturer 47–49; Univ. of Paris: CNRS Attache 53–58; BARC, Bombay: Res. Offr 59–61; Poona Univ.: Assoc. Prof. 61–67; Nagpur Univ.: Prof. 67–85; Goa Univ.: Prof. 87–90, Consultant 90–91.

Scientific Work: Worked on numerous problems in pure as well as applied X-ray spectroscopy. Work on chemical shifts in X-ray absorption spectra has shown how the data on chemical shifts can furnish very useful information on the electronic structure of materials. Built X-ray laboratories in the universities of Poona, Nagpur and Goa from where 35 students have obtained their PhD degree in X-ray spectroscopy.

Important Publications: **(1)** *Advances in X-ray spectroscopy* (1982) Pergamon Press. **(2)** Raman effect in the X-ray region (1984) *Pramana – J. Phys.* **23**, 279–295. **(3)** Study of the K_α satellites and hypersatellites in the X-ray and Auger spectra of Neon (1986) *Pramana – J. Phys.* **27**, 275–290. (4) *Chemical shifts in X-ray absorption spectra* (1980) Presidential Address, Indian Science Congress, Calcuta.

Membership: Fellow: NASI 80; Maharashtra Academy of Sciences, Pune.

Awards & Distinctions: Govt of Maharashtra Best Teacher Award 1982 • Instrument Soc. India, Annual Award 87.

Mande, Shekhar Chintamani

Elected: 2003
Position: Staff Sci., Centre for DNA Fingerprinting & Diagnostics, Hyderabad
Specialization: Macromolecular Crystallography; Protein Structure and Function
Date and Place of Birth: 5 April 1962; Pune, Maharashtra
Parents: Chintamani Mande and Latika
Spouse and Children: Sharmila; one child
Address: Scientist, Centre for DNA Fingerprinting and Diagnostics, Bldg 7
Gruhakalpa; 5-4-399/B, Nampally, Hyderabad 500 001, India
Tel. (040) 2474 9401 (O), (040) 2419 3053 (R)
email: shekhar@cdfd.org.in; URL: http:/www.cdfd.org.in/stfshekh.htm

Education: Nagpur Univ.: BSc 82, MSc 84; IISc: PhD 91.

Career: IMTECH, Chandigarh: Sci. 95–2001; Centre for DNA Fingerprinting and Diagnostics: Staff Sci. 2001–.

Scientific Work: Major focus has been on computational analysis of *M. tuberculosis* genome, identification of novel drug targets, their biochemical and biophysical characterization and structure elucidation. Crystal structure of chaperonin-10 was determined, which showed interesting divalent cation-binding sites. Chaperonin-60's have been characterized for their unique properties. Alkylhydroperoxidase C has been biochemically characterized, and high throughput assay for screening inhibitors been set up. An ORF was assigned function of inositol-1-P synthase based on computational and experimental analysis.

Important Publications: **(1)**Dynamic changes in protein functional linkage networks revealed by integration with gene expression data (2008) *PLoS Comput. Biol.* **4**,11. **(2)** Inferring genome-wide functional linkages in *E. coli* by combining improved genome context methods: comparision with high-throughput experimental data (2007) *Genome Res.* **17**, 527–535. **(3)** The 2.15 A crystal structure of *Mycobacterium tuberculosis* chorismate Mutase reveals an unexpected gene duplication and suggests a role in host-pathogen interactions (2006) *Biochem.* **45**, 6997–7005. **(4)** Mycobacterium tuberculosis GroEL homologues unusally exist as lower oligomers and retain the ability to suppress aggregation of substrate proteins (2004) *J. Mol. Biol.* **342**, 605–617. **(5)** Characterization of the *Mycobacterium tuberculosis* H37Rv alkyl hydroperoxidase AhpC points to the importance of ionic interactions in oligomerization and acivity (2001) *Biochem. J.* **354**, 209–215.

Memberships: Fellow: NASI 2003.

Awards & Distinctions: B M Birla Young Scientist Award 99 • S S Bhatnagar Prize 2005.

Mani, Anna Modayil*

Elected: 1960
Specialization: Atmospheric Physics; Instrumentation
Date and Place of Birth: 23 August 1918; Peermedu, Kerala
Parents: Modayil Pothen Mani and Anna
Last Address: 2B Retreat Apartments, 72/1, Cunningham Road, Bangalore 560 052, India
***Deceased:** 16 August 2001

Education: Univ. of Madras: BSc Hons 39; IISc, Bangalore: Associateship 42.

Career: India Meteorological Dept, Pune: Meteorologist 48–52; Indian Meteorological Dept, New Delhi: Meteorologist 52–53; Instruments Dn: Meteorologist in-Charge 53–60, Dir (Instruments) 60–68, Dy Dir General (Instruments) 68–76; RRI, Bangalore: Vis. Prof. 76–80.

Scientific Work: Contributed to the study of radiation, ozone and atmospheric electricity, both on the surface and in the upper air using special sounding techniques. Organized the production of most of the instruments required for this purpose. The Central Radiation Laboratory at Pune and the National Ozone Centre at New Delhi have been so well organized largely due to the efforts taken, that they have been recognized as the regional centres of the World Meteorological Organization for the calibration and comparison of radiation and ozone instruments from different countries. Developed techniques for manufacturing and calibrating of ozone sondes. Made a large number of soundings over different parts of India, and obtained data of fundamental importance on the distribution of ozone in the tropics up to a height of about 30 km. Involved in the study of the distribution of solar radiation and wind over India.

Important Publications: **(1)** *Hand book of solar radiation data for India* (1980) Allied Publ. **(2)** *Hand book of solar radiation over India* (1981) Allied Publ. (3) Distribution of sunshine and solar radiation over Indian peninsula (1962) *Indian J. Met. Geophys.* **13,** 195–212 (4) *Wind energy data for India* (1983) Allied Publ. **(5)** *Limit energy resources survey in India* (1990, 1992, 1994) vols 1–11, Allied Publ.

Memberships: Fellow: INSA 76; IETE; Indian Meteorological Soc. 77 • Member: International Solar Energy Soc.; Solar Energy Soc. of India.

Awards & Distinctions: K R Ramanathan Medal 87 • SESI K S Rao Memorial Award 93 • President: Curr. Sci. Assn 89–94.

Mani, Harihara Subra

Elected: 1984
Position: Prof., DAE-BRNS Sci.
Specialization: Elementary Particle Physics
Date and Place of Birth: 4 May 1938; Palghat, Kerala
Parents: P H Sarma
Spouse and Children: Vasantha; one *s*, one *d*
Address: 2, Fourth Cross Street, Durga Colony, Sembakkam, Chennai 600 073, India
Tel. (044) 2228 1131 (R), Mobile: 94447 04725
email: hsmani@gmail.com

Education: Delhi Univ.: BSc Hons 57, MSc 59; Columbia Univ.: PhD 64.

Career: NPL: Sr Sci Offr 65–66; Univ. of Michigan: Asst Prof. 66–69; IIT Kanpur: Asst Prof. 69–73, Assoc. Prof. 73–76, Prof. 76–94; Mehta Res. Inst. for Maths and Math. Phys., Allahabad: Dir 94.

Scientific Work: Research spans subjects in particle physics. Contributed to the theory of weak interactions, current algebra, hadron resonances and quantum chromodynamics. Generalised ward Takahashi identities to be used in weak interaction theories. estimates of EDM of neutron. Found model independent theorems for nonlocal weak interactions; parity violating effects in polarized Drell Yan process; exact solution of a particle in a tetrahedronal box; model for fragmentation functions.

Important Publications: **(1)** *Introduction to modern physics,* East West Books(Madras) Pvt Ltd **(2)** T-violation and electromagnetic interactions (1965) *Phys. Rev.* **D1**, 140, 5849. **(3)** Parity violating effects in dilepton production using polarized targets (1979) *Phys. Lett.* **84B** 104. **(4)** Exact solution of a particle in a tetrahedranol box (1982) *J. Phys.* **15**, 2131. **(5)** SU(3) model for an octet baryon and meson fragmentation (1998) *Phys. Rev.* **D58,** 094014.

Memberships: NASI 84.

Awards & Distinctions: Distinguished Teacher Award 2007.

Mani, Kalyanasundaram Subra*

Elected: 1974
Specialization: Neurology
Date and Place of Birth: 18 October 1928; Madurai, Tamil Nadu
Parents: S K Sundaram and Subbalakshmi
Spouse and Children: Geeta; three children
Last Address: Neurological Clinic, No. 1, Old Veterinary Hospital Road, Basavanagudi, Bangalore 560 004, India
***Deceased:** 28 March 2001

Education: Madras Univ.: BSc 47, MBBS 52, MD 56.

Career: Govt General Hospital, Madras: House Surgeon 53–54, House Physician 54–56; Madras Med. College: Asst Prof. of Medicine 56–57; National Inst. of Mental Health & Neuro Sciences: Res. Asst 57–58, Asst Prof. in Neurology 58–64, Assoc. Prof. 64–71, Prof. 71–78; Bangalore Medical College: Hon. Prof. 63–.

Scientific Work: Furnished unequivocal clinico-pathological confirmatory evidence in monkeys injected intrathecally with ox-dapro, the presumed toxic agent from *L. sativus.* The first clinical description of hot water epilepsy in which pouring hot water on the head during a bath precipitates an epileptic seizure was provided. Detailed clinico-pathological work on tropical spastic paraplegia was shown to be due to HTLV-1 virus infection elsewhere, but not in India.

Memberships: Fellow: Indian Acad. of Medical Sci.; Aero-Medical Soc. of India.

Manna, Gobinda Kisor*

Elected: 1978
Specialization: Animal Cytogenetics; Radiation Biology; Mutagenesis
Date and Place of Birth: 10 October 1926; Multi, West Bengal
Parents: S C Manna and Tulshi Mohini
Spouse and Children: Latika; two *s*, one *d*
Last Address: Department of Zoology, University of Kalyani, Kalyani 741 235, India
***Deceased:** 25 December 2006

Education: Univ. of Calcutta: BSc Hons 46, MSc 48, DPhil 52, PRS 54, DSc 62.

Career: Bangabasi College, Calcutta: Lecturer in Zoology 49–61; Hokkaido Univ., Dept of Zoology: Vis. Sci. 56; Forest Insect Lab., Canada, Dept of Agriculture: NRC PD Fellow 56–58; Univ. of Texas, USA, M D Anderson Hospital: Res. Assoc. 59; Chittaranjan Cancer Hospital, Calcutta: Hon. Cytologist 52–56; Kalyani Univ.: Reader & Head 61, Prof. 68–90, Dean Faculty of Sci. 68–70, Emeritus Prof. 91, UGC Natl Fellow 78–81.

Scientific Work: Pioneered the development of mammalian and fish cytogenetics. Innovated a coumarine technique for handling *in vivo* human chromosomes of normal and neoplastic cervix uteri and a novel method of using the sex chromosome aberrations during first spermatocyte of X-irradiated grasshoppers and of heteroptera as a parameter for the study of fundamental problems in radiation biology. Demonstrated the mutagenic potency of 2 dozens of antibiotics and about a dozen of chemosterilants in mice system and transmitted to F1. In the field of mutagenesis, showed that viruses, bacteria, lower fungi, parasitic protozoans and alga are potential mutagens like chemical and physical ones.

Memberships: Fellow: INSA 76; NASI; Acad. of Zoology; Zoological Soc. of India; West Bengal Acad. of Sci. and Technology.

Awards & Distinctions: J C Bose Award 76 • Moaut Gold Medal 56.

Manna, Indranil

Elected: 2008
Position: Prof., Chmn, Central Res. Facility, IIT Kharagpur
Specialization: Structure-property Correlation of Engineering Materials; Nanostructured Materials; Surface Engineering
Date and Place of Birth: 22 January 1961; Calcutta, West Bengal
Parents: G K Manna and Latika
Spouse and Children: Snigdha; one *s*, one *d*
Address: Department of Metallurgical & Materials Engineering, Indian Institute of Technology,
Kharagpur 721 302, India
Tel. (03222) 28 3266 (O), (03222) 28 3267 (R)
email: imanna@metal.iitkgp.ernet.in; URL: www.imanna.org

Education: Calcutta Univ.: BE 83; IIT Kanpur: MTech 84; IIT Kharagpur: PhD 90; Calcutta Univ.: PRS 92.

Career: IIT Kharagpur: Lecturer 85–90, Asst Prof. 90–97, Assoc. Prof. 97–2003, Prof. 2003–, Chmn 2006–.

Scientific Work: Development of nano-intermetallic phase dispersed amorphous Al-alloy by mechanical alloying; synthesis of nanofluid; application of laser and plasma for surface engineering steel and non-ferrous alloys. Mechanism and diffusion kinetics in discontinuous precipitation.

Important Publications: **(1)** Microstructural and nuclear magnetic resonance studies of solid state amorphization in Al-Ti-Si composites prepared by mechanical alloying (2004) *Acta Materialia* **52**, 4133–4142. **(2)** A polymorphic change in zirconium by mechanical milling (2002) *Appl. Phys. Lett.* **81**, 4136–4138. **(3)** Discontinuous reactions in solids (2001) *Int. Mater. Rev.* **46**, 53–91. **(4)** A polymorphic bcc to fcc transformation of nanocrystalline niobium studied by positron annihilation (2001) *Phys. Rev.* **B63**, 54107–54113. **(5)** Effect of laser surface melting on corrosion and wear resistance of a commercial Mg alloy (2003) *Mater. Sci. Engg* **A 361**, 119–129.

Memberships: Fellow: NASI 2005; INAE 2005; Inst. of Engg 2005; Indian Inst. of Metals 2005.

Awards & Distinctions: INSA Medal for Young Scientist 92 • MRSI Medal 99 • Metallurgist of the Year Award 2002 • G D Birla Gold Medal 2008 • INAE-AICTE Distinguished Industry Professorship 2007.

Manoharan, Periakaruppan Thangiah

Elected: 1981
Position: Ramanna Fellow, IIT Chennai
Specialization: Physical, Inorganic & Bioinorganic Chemistry; Spectroscopy Nanoscience
Date and Place of Birth: 12 June 1935; Tirumangalam
Parents: K P Thangaiah and Sivabakiam
Spouse and Children: Kanagavalli; one *s*, one *d* (Uma, Navin Kumar)
Address: SAIF, Indian Institute of Technology, Chennai 600 036, India
Tel. (044) 2257 4938, (044) 2257 4935 (O), (044) 6455 7294 (R), Mobile: 98412 92225
email: ptm@iitm.ac.in

Education: Madras Univ.: BSc 55, MA 59, Columbia Univ., NY: PhD 66.

Career: Madurai College; Demonstr (Chem.) 55–57; Thiagarajar College: Lecturer 59–61; Columbia Univ.: Teaching Fellow 61–63; MSU, Lansing: Res. Asst, Asst. Prof. 66–69; IIT Kanpur: Asst Prof. 69–72; IIT Madras: Assoc. Prof., Prof. 72–95, CSIR Sr Sci., Emeritus Prof. 95–2006; INSA Sr Sci.; Madras Univ.: Vice Chancellor 97–99; JNCASR: Hon. Prof. 2005–07, Ramanna Fellow 2006–.

Scientific Work: Used theory and spectroscopy to explain properties such as forbidden hyperfine interactions, quadrupolar interactions, and spin flips. Worked in some of the most challenging areas such as exchange interactions in one-dimensional systems, biradicals, and exchange-coupled systems (both ferromagnetic and antiferromagnetic) involving two more centres. Made significant addition to the spectroscopy of reconstituted haemoglobins revealing the presence of two different haeme environments. Work involved probing of oxygen-ligand uptake in haemoglobins and haemocyanin, study of Jahn–Teller interactions and exchange interactions in solid state materials.

Memberships: Fellow: INSA 85; TWAS 2002.

Awards & Distinctions: S R Palit Memorial Award 88 • FICCI Award 89.

Mantravadi, Murty Venkataradhakrishna

Elected: 1975
Specialization: Optics; Optical Engineering
Date and Place of Birth: 4 October 1929; Perakalapudi, Andhra Pradesh
Parents: Gangadhara Sastry and Venkatalakshmi
Spouse and Children: Suryaprabhadevi; three *s*, three *d* (Gangadhar, Ravikumar, Suryanarayana, Sandhyarani, Lakshmi, Padma)
Address: 21610, Villa Pacifica Circle, Carson, California 90745, USA
Tel. (+1–310) 513 1882 (R)
email: collimate@yahoo.com

Education: Andhra Univ.: BSc 49; MIT, Madras: DMIT 52; Univ. of Rochester, USA: PhD 59.

Career: MIT, Madras: Lecturer 52–55, Prof. and Head of Faculty of Instrument Technol. 64–66; Univ. of Rochester, USA, Inst. of Optics: Teaching Asst 56–59, Res. Assoc. 59–61, Asst Prof. 61–64; BARC, Bombay: Sr Sci., Engg and Head of Optics Dept 66–82; Centro de Investigaciones en Optica: Sr Prof. 82–84; Halo Technol., USA: Chief Sci. 84–86; Alabama A&M Univ., USA, Dept of Phys: Prof. 86–87; Northrop Grumman Corporation, USA: Res. Engineer 87–94.

Scientific Work: Contributed in the areas of interferometry, holography, optical design of systems such as lenses, telescopes, spectroscopic instruments, etc. Pioneered one of the earliest use of lasers for testing of optics by the interferometric technique. Devised a very simple and elegant laser interferometer for testing optical abberations and collimation. Designed and obtained patents on the one-step method of making rainbow holograms.

Important Publications: **(1)** Simulation of primary aberrations of a lens using a generalized Michelson interferometer (1960) *J. Opt. Soc. Am.* **50,** 1089. **(2)** General ray tracing procedure (1962) *J. Opt. Soc. Am.* **52**, 672. **(3)** The use of a single parallel plate as a lateral shearing interferometer with a visible gas laser source (1964) **3**, 531. **(4)** Interference between wavefronts rotated or reversed with respect to each other and its relation to spatial coherence (1964) *J. Opt. Soc. Am.* **54,** 1187. **(5)** *Optical shop testing* (2007) John Wiley, Third Edition, Ch. 1, 4

Memberships: Member: Res. Soc. of America; Sigma-Xi • Fellow: Optical Soc. of America 64; Optical Soc. of India; Soc. of Photo-Optical and Instrumentation Engineers; Optical Soc. of Southern California; Optical Inst. of Southern California.

Marimuthu, Ganapathy

Elected: 2001
Position: Prof. & Head, Dept of Animal Behaviour and Physiology, MKU, Madurai
Specialization: Animal Behaviour; Chronobiology
Date and Place of Birth: 25 February 1954; W Pudupatty, Tamil Nadu
Parents: P Ganapathy and G Mariammal
Spouse and Children: M Kalavathy; one *s*, one *d* (Ramesh, Dhurka)
Address: Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai 625 021, India
Tel. (0452) 245 9116 (O), (0452) 245 8658 (R), Mobile: 97916 96463
email: gmari@sancharnet.in, mailbox_gm@rediffmail.com

Education: MKU: BSc 75, MSc 77, PhD 84, DSc 2001.

Career: MKU: Res. Assoc. 84–87, Lecturer 87–96, Reader 96–2004, Prof. & Head, Dept of Animal Behaviour and Physiology 2004–.

Scientific Work: The Indian false vampire bat detects prey (e.g. frogs) by passively listening to the rustling sound that associates with movement of the latter on ground. To detect a frog at water surface, it uses its echolocatory system. At the ages of 62–80 days sub adults dissociate from mothers and are able to detect prey by themselves. On a few occasions, mothers transfer pieces of frogs, when their young approach and solicit for prey. The peaks of foraging visits of fruit bats, to feed upon nectar (e.g. from flowers of banana), coincide with maximal amount of nectar secretion. Bats exhibit *in situ* and *ex situ* feeding, when foraging on larger (e.g. mango and guava) and smaller (e.g. fig and Singapore cherry) fruits, respectively. In order to reduce bat-visits to orchards (e.g. mango, guava, etc.) it is advisable to grow shrubs of Singapore cherry near orchards.

Important Publications: **(1)** Social entrainment of the circadian rhythm in the flight activity of the microchiropteran bat *Hipposideros speoris* (1981) *Behav. Ecol. Sociobiol.* **8**, 147–150. **(2)** The use of acoustical cues for prey detection by the Indian false vampire bat *Megaderma lyra* (1987) *J. Comp. Physiol.* **A 160**, 509–515. **(3)** Active acoustic gleaning of water surface by the Indian false vampire bat (1995) *Ethology* **99**, 61–74. **(4)** Development of prey capture in the Indian false vampire bat *Megaderma lyra* (2007) *Ethology* 113, 1–7. **(5)** *In situ* feeding tactics of short-nosed fruit bat (*Cynopterus sphinx*) on mango fruits. Evidence for extractive foraging in a flying mammal. (2008) *J. Ethol* **26**, 1–7.

Memberships: Fellow: NASI 98; INSA 2005; Ethological Soc. of India; Indian Soc. for Chronobiology; Indian Sci. Congress; American Soc. of Mammalogists; Assn for Study of Animal Behaviour; Assn for Tropical Biology and Conservation; Bat Conservation International; Chiroptera Conservation Information Network of South Asia.

Awards & Distinctions: IASc Assoc. 87–89 • Silver Jubilee Gold Medal, Ethological Soc. of India 96 • Tamil Nadu Scientists Award (TANSA).

Mashelkar, Raghunath Anant

Elected: 1983
Position: CSIR Bhatnagar Fellow, NCL, Pune
Specialization: Polymer Science and Engineering; Non-Newtonian Fluid Mechanics
Date and Place of Birth: 1 January 1943; Mashel, Goa
Parents: Anant Mashelkar and Anjani
Spouse and Children: Vaishali; one *s*, two *d* (Amey, Shubhra, Shruti)
Address: National Chemical Laboratory, Pashan Road, Pune 411 008, India
Tel. (020) 2590 2197, (020) 2590 2605 (O), (020) 2729 1268 (R), Mobile: 99603 77577
email: ram@ncl.res.in

Education: Bombay Univ.: BE 66, PhD 69.

Career: Univ. of Salford, UK, Chem. Engg Dept: Laverhume Res Fellow 69–70, Lecturer 70–76; Univ. of Delaware: Vis. Prof. 74, 88; Technical Univ. of Denmark: Vis. Prof. 82; NCL, Pune: Asst Dir 76–78, Dy Dir 78–89, Dir 89–95, CSIR, New Delhi: Dir Gen. 95–2006, Secy, DSIR 95–2006; MIT, Boston, Harvard-MIT HST Div.: Vis. Prof. 2007, Univ. Monash, Clayton: Sir Louis Matheson Distinguished Vis. Prof. 2007, 2008, 2009, CSIR Bhatnagar Fellow, 2007–.

Scientific Work: Has made path-breaking contributions in transport phenomena and in the thermodynamics of swelling, superswelling and shrinking polymers, modeling of polymerization reactors and engineering analysis. His exceptional leadership first transformed NCL, and later CSIR. In post-liberalized India, has been one of the dominant forces in shaping the direction for S&T in India. Contributed in giving traditional knowledge the rightful place by fighting the battles on wrong patents (e.g. turmeric) to creating Indian Traditional Knowledge Digital Library.

Important Publications: **(1)** Nanoparticle-mediated targeting of MAPK signaling predisposes tumor to chemotheraphy (2009) *Proc. Natl Acad. Sci. (PNAS)* **106**, 7057–7961 **(2)** Novel macroscopic self-organisation in polymer gels (2001) *Adv. Mater.* **13**, 23, 5368 **(3)** Switching biomimetic hydrogels (2000) *Proc. R. Soc. (London)* **456**, 1305 **(4)** Thermodynamics of hydrogen bonded polymer gel–solvent systems (1995) *Chem. Eng. Sci.* **50**, 22, 3535 **(5)** Diffusional transport modulation through reversible bilayer membranes (1992) *Proc. R. Soc. (London)* **439**, 397.

Memberships: Fellow: INSA; TWAS; R. Soc. (London); World Academy of Arts & Science (USA) • Foreign Assoc.: Natl Acad. of Sci. (USA); Natl Acad. of Engg (USA) • Foreign Member: R. Acad. of Engg (UK) • Foreign Fellow: Australian Acad. of Technical Sci. & Engg • President: INSA; ICE (UK) • Member: Sc. Advisory Council to the PM.

Awards & Distinctions: 27 Universities: DSc (hc) • S S Bhatnagar Award 82 • Pandit Jawaharlal Nehru Natl Award 91 • G D Birla Award 93 • JRD Tata Corporate Leadership Award 98 • TWAS Medal 2005 • H K Firodia Award 2000 • Lal Bahadur Shastri Natl Award 2002 • World Federation of Engg Organization (WEFO) Medal, Paris 2003 • Star of Asia Award 2005.

Mata, Prasad*

Elected: 1934
Specialization: Colloidal Chemistry; Photochemistry; Magnetochemistry; X-ray and Crystal Structure
Date and Place of Birth: 15 February 1898; Gursahaiganj, Fatehgarh, Uttar Pradesh
Parents: Munshi Mathura Prasad and Shibbo Devi
Spouse and Children: Sheila; three *s*, two *d*
Last Address: Vikram University, Ujjain, India
***Deceased:** 28 January 1979

Education: Agra College: BSc 20, MSc 22; BHU, Varanasi: DSc 25.

Career: Univ. Chem. Res. Lab., Lahore: Asst 25; London Royal Inst.: Postdoc Fellow 26–27; Bombay Royal Inst. of Sci.: Prof. of Inorg. Phys. Chem., Principal 25–53; Central Salt Res. Inst., Bhavnagar: Dir 53–56; Vikram Univ., Ujjain: Vice-Chancellor 56–60.

Scientific Work: Problems investigated deal with properties and mechanism of the formation of gels, kinetics of coagulations and adsorption and protection of colloidal systems. Classified gels as heterogeneous systems which may be transparent and opaque, elastic and rigid and heat-reversible and irreversible and showed that these properties are not independent characteristics of a gel. Showed that silica acid gel possesses elasticity and obeyed Hook's law within certain limits. Prepared a number of inorganic substances in translucent state, opaque state or water-clear transparent state by properly adjusting the hydrogen ion concentration. Prepared the gels of sodium and potassium salts of oleic, stearic and palmitic acids in xylene, toluene and neyol and studied their properties. In photo-chemistry, attempted the study of photoreduction of ferric chloride in the presence of certain organic substances. In magnetochemistry, carried out extensive work on determination of ionic susceptibilities of many cations and anions and on molecular structure of certain compounds using susceptibility measurements and on the effect of colloidalization on magnetic susceptibilities of substance.

Memberships: Fellow: Royal Inst. of Chem.; INSA 35; NASI • President: Institution of Chemists.

Mathai, George*

Elected: 1934
Specialization: Zoology; Madreporarian Corals
Date of Birth: 13 November 1887
Parent: Thomas Matthai
Spouse and Children: Mary; one *s* (Ariel)
Last Address: Government College, Department of Zoology, Lahore
***Deceased:** 25 June 1947

Education: Univ. of Cambridge: BA 13, MA 18, ScD 29.

Career: Government. College, Lahore, Dept of Zoology: Prof. and Head 18–42.

Scientific Work: Initially worked on the morphology and classification of madreporarian corals. The special merit of this work was that it took into account even the structure of the soft parts of the body, which were expected to provide a more rational index to affinities than the calcareous skeleton alone. In 1940, discussed the theoretical bearings of the work, summarizing conclusions regarding evolutionary tendencies in the Astraeidae. Later, was engaged in the study of the colonial Fungidae. For taxonomic work, examined all existing type collections in Europe and America. Studies on corals, thus, formed the main theme of work, and are regarded as a monumental contribution to our knowledge of *Madreporaria*.

Memberships: Fellow: Linnean Soc.; Royal Soc. of Edinburgh; INSA 35.

Mathews, Cherian Kanjirathumkal

Elected: 1993
Position: MD, Indus Scientific Pvt Ltd, Bangalore
Specialization: High Temperature Chemistry; Solid State Ionics and Sensors; Materials Characterization and Instrumentation
Date and Place of Birth: 22 March 1935; Kumbanad, Kerala
Parents: T V Mathai and Mariamma
Spouse and Children: Sally; four *s* (Manoj, V inod, Anil, Sunil)
Address: Manas, 52, Banjara Orchards, Horamavu, Banaswadi Post, Bangalore 560 043, India
Tel. (080) 2544 9762, (080) 2544 9764 (O), (080) 2565 4951 (R), Mobile: 98440 10286
email: md@indusscientific.com

Education: Kerala Univ.:BSc 55; Agra Univ.: MSc 58; BARC Trg School 58–59; McMaster Univ., Canada: PhD 64

Career: BARC, Bombay: Sci. Offr in Radiochemistry Dn 59–72, Head of Mass Spectrometry Section 73–78; IGCAR, Kalpakkam: Head Radiochemistry Progr. 78–93, Dir Chemical Group 93–95; McMaster Univ., Canada: Res. Fellow in Atomic Energy 72–73.

Scientific Work: Starting from scratch, developed the entire chemistry and chemical technology programme as part of India's fast breeder development. Established the phase diagrams of several ternary systems of alkali metals with transition metals and oxygen. Studies on ionic transport in electrolytes led to practical devices in the form of electrochemical sensors for hydrogen, carbon and oxygen in liquid sodium. Investigated metal-tellurium binary systems which resulted in the observation of large homogeneity ranges in metal tellurides and elucidated their thermodynamic properties. Utilized mass spectrometry to observe fine structure in fission and the ICP-MS technique to study trace elements in biological and geological systems. First to report many thermodynamic properties of C_{60} and C_{70} and their binary phase diagram. Organised the chemistry component of India's fast reactor programme.

Important Publications: **(1)** *Applied chemistry of the alkali metals* (1987) Plenum Press New York. **(2)** Vapour pressure studies on Buckministerfullerenes (1992) *J. Phys. Chem.* **96**, 1566–68. **(3)** Studies on the thermodynamics of the C_{60}–C_{70} system (1994) *J. Phys. Chem.* **98**, 1333–1340. **(4)** A novel method for the measurement of vapour pressures and thermodynamic properties of carbides (1995) *J. Phys. Chem.* **B99**, 16468–73. **(5)** An electrochemical hydrogen meter for the measurement of dissolved hydrogen in sodium (1995) *Nucl. Technol.* **96**, 408–416.

Memberships: Fellow: IANCAS; SAEST; Materials Res. Soc. of India; Indian Nuclear Soc.; Atomic Energy of Canada.

Awards & Distinctions: Krishnaswamy Gold Medal 55 • ISMAS Gold Medal 91 • MRSI Medal 93 • Joliot Curie Lecture Award 94.

Mathews, Piravonu Mathews

Elected: 1975
Position: Emeritus Prof., Dept of Theoretical Phys., Madras Univ.
Specialization: Geoastronomy and Geodynamics; Quantum Theory of Particles and Fields, Statistical Mechanics; Mathematical Methods
Date and Place of Birth: 12 May 1932; Maramon, Kerala
Parents: P C Mathews and Rachel
Spouse and Children: Mary; three *s*
Address: No. 22/20, Lady Madhavan Road, Nungambakkam, Chennai 600 034, India
Tel. (044) 2220 2830 (O), (044) 2817 2098 (R), Mobile: 99403 05041
email: indi4272@yahoo.com

Education: Univ. of Madras: BSc Hons 52, MSc 53, PhD 56.

Career: Railway Testing and Res. Centre, Lucknow: Chief Tech. Asst 56; NRC, Canada: Postdoc Fellow 56–58; Brandeis Univ., USA, Dept of Phys.: Postdoc Fellow 58–59; Sr Res. Assoc. 64–65; Madras Univ.: Reader 59–64, Prof. 64–75, Sr Prof. 75–92; Univ. of Texas, USA, Dept of Phys.: Vis. Prof. 82–83; MIT, USA, Dept of Phys.: Vis. Prof. 82–83; Harvard-Smithsonian Center for Astrophysics, USA: Vis. Sci. 87–89, 92.

Scientific Work: Developed a geophysical theory of the Earth's nutations which was used to estimate parameters of the Earth's deep interior that are hardly susceptible to measurement by other means, and to account for high-precision space-geodetic observations with unprecedented accuracy. This geophysical model, adopted by International Astronomical Union is the IAU–2000 model of nutation and precession. Gave a direct and general proof of the spin-statistics theorem of quantum field theory. Formulated relativistic wave equations in Schrodinger/Hamiltonian form for arbitrary spin particles, and explored the consistency requirements for interactions with external fields. Elucidated the connection between the gauge freedom of massless particles and indecomposable representations of the Lorentz group. Contributed to the understanding of the apparently irreversible evolution of large quantum systems. Developed and applied stochastic theory methods to a variety of physical systems.

Important Publications: **(1)** On the IAU 2000/2006 precession-nutation and comparison with other models and VLBI observations (2009) *Celest. Mech. Dyn. Astron.* **103**, 179–190. **(2)** Modelling of nutation and precession: New nutation series for nonrigid Earth and insights into the Earth's interior (2002) *J. Geophys. Res.* **107**, B4, ETG 3-1-3-26. **(3)** Forced nutations of the Earth: Influence of inner core dynamics, I. Theory, and II. Numerical results and comparisons (1991) *J. Geophys. Res.* **96**, 8219–8257. **(4)** Arbitrary spin fields: Spectral representations for the two-point functions and the connection between spin and statistics (1971) *Nucl. Phys. B*, **31**, 551–569. **(5)** Stochastic equations for non-equilibrium processes, (1960) *Phys. Rev.* **120**, 1–16.

Memberships: Fellow: INSA 83; American Geophysical Union.

Awards & Distinctions: Hari Om Ashram Meghnad Saha Award 75.

Mathur, Asha

Elected: 1993
Position: Emeritus Medical Sci., Saraswati Dental College & Hospitals, Lucknow
Specialization: Virology; Immunology; Medical Microbiology
Date and Place of Birth: 13 June 1938; Bijnor, Uttar Pradesh
Parents: Jagdish Narain and Bindeshwari
Address: Flat No. 103, Shalimar Estate 430A, Birbal Sahni Marg, New Hyderabad, Lucknow 226 009, India
Tel. (0522) 2815044–45 (O), (0522) 278 0325 (R), Mobile: 96213 95580
email: asha.mathur@gmail.com

Education: Agra Univ.: MBBS 65; Lucknow Univ.: DCP 66, MD 69.

Career: K G Med. College, Lucknow, Dept of Pathology and Bacteriology: Demonstrator 67–69, Lecturer 69–75, Reader in Virology 75–86: Post-graduate Dept of Microbiology: Prof. 86–97, Prof. & HOD 97–98, Prof. as Natl Awardee 98–2000; Central Drug Res. Inst., Lucknow: Emeritus Sci. 2001–03; Saraswati Dental College & Hospital, Lucknow; Head, Dept of Gen. Pathology & Microbiology 2003–08; Emeritus Med Sci. 2008–.

Scientific Work: Showed JEV infection in human as well as mouse model during pregnancy could be transmitted to foetus resulting in abortions and foetal death. Dissected out the mechanism of latent JEV infection in children and in experimental animals and successfully addressed the question of the mechanisms of the different clinical presentations and disease processes during JEV infection. Discovered host immune reponse and showed unique pathogenesis related cytokine (MDF) during JEV infection which is responisble for increased capillary permeability. MDF modulates the activation of neutrophils, regulates granulocytosis, breaches blood brain barrier and controls iron metabolism. Explained that MDF degrades virus via triggering respiratory burst, generation of toxic oxygen radicals and production of nitric oxide. Started first AIDS surviellance centre in UP investigated various viral epidemics.

Important Publications: (1) Induction of nitric oxide synthetase during Japanese encephalitis virus infection: evidence of protective role (2001) *Arch. Biochem. Biophys.* **391**, 1, 1–7. (2) Japanese encephalitis virus latency in peripheral blood lymphocytes and recurrence of infection in children (1991) *Clin. Exp. Immunol.* **85**, 85–89 (3) Neutrophil chemotactic factor produced by Japanese encephalitis virus stimulated macrophages (1991) *Clin. Exp. Immunol.* **86**, 299. (4) Persistence, latency and reactivation of Japanese encephalitis virus infection in mice (1986) *J. Gen. Virol.* **67**, 381. (5) Congential infection of mice with Japanese encephalitis virus (1981) *Infect. Immun.* **34**, 26–29.

Memberships: Fellow: NASI 89; INSA 90; TWAS 2000; London Royal College of Pathology; NAMS.

Awards & Distinctions: J B Srivastav Oration Award 83 • Hari Om Ashram Alembic Res. Award 84 • Y S Narayana Rao Oration Award 87 • Om Prakash Bhasin Research Award 94 • Kshanika Oration Award 96 • Senior National Women Bio-scientist Award 99 • Glaxo Oration Award 2004.

Mathur, Deepak

Elected: 1992
Position: Sr Prof., Dir, Centre for Excellence in Basic Sciences, TIFR, Mumbai
Specialization: Intense and Ultrafast Laser Fields; Molecular Dynamics and Biological Physics
Date and Place of Birth: 8 April 1952; Delhi
Parents: Amrit Dayal and Damyanti
Spouse and Children: Helen; two *s* (Ajay, Paul)
Address: UM-DAE Centre for Basic Sciences, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2736 (O), (022) 2362 6287 (R)
email: atmol1@tifr.res.in

Education: Univ. of London: BSc 73, PhD 76.

Career: Univ. College, London: Postdoc Fellow, Res. Offr 76–78, Res. Offr 78–81; TIFR: Vis. Fellow 81–82, Fellow 82–86, Reader 86–91, Assoc Prof. 91–96, Prof. 96–2002, Dean Natural Sci. 2001–02, Sr Prof. 2002–, Dir., CBS 2007–.

Scientific Work: First experimental demonstration of pendular states in molecules that are spatially-oriented by intense, linearly-polarized laser fields. Discovered anisotropic emission of energetic ions and electrons from hot nanoplasmas created upon irradiation of large gaseous clusters by intense, femtosecond laser pulses. Built the country's first intense laser source operating with ultrashort, few-cycle pulses. Conducted pioneering studies on high-efficiency white light generation by exposing condensed phase materials to femtosecond-duration laser pulses. Used femtosecond lasers to 'write' waveguides inside bulk materials, leading to the establishment of a national-level, multi-institutional collaboration in the emerging area of ultrafast photonics. First demonstration of a cellular motor based on live cells in an optical trap. Built a multiple optical trap set-up using a simple, non-holographic method. Developed an ultra-sensitive detector of ultraviolet radiation for biodegradation studies at a single-cell level. Discovered a new method of optically trapping carbon nanotubes using microbubbles as a trapping medium; such nanotube-encrusted microbubbles also act as nanoscale sources of white light.

Important Publications: **(1)** Multiple charged molecules (1993) *Phys. Rep.* **225,** 193. **(2)** Molecular pendular states in intense laser fields (1996) *Phys. Rev.* **A53,** 3098. **(3)** Asymmetric high-energy ion emission from argon clusters in intense laser fields (2001) *Phys. Rev.* Lett. **87**, 085005. **(4)** Torque-generating malaria-infected red blood cells in an optical trap (2004) *Opt. Express* **12**, 1 179. **(5)** Molecular symmetry effects in the ionization of CS_2 by intense few-cycle laser pulses (2008) *Phy. Rev.* **A78,** 013405.

Memberships: Fellow: INSA 99.

Awards & Distinctions: N S Satyamurthy Award 86 • S S Bhatnagar Prize 91 • Fulton Fellowship 95 • JSPS Invitation Fellowship 2003 • Co-Chair of the Asian Intense Laser Network 2004 • Co-Editor of *Europhys. Lett.* 2006 • J C Bose Natl Fellow 2007 • Erasmu-Mundus Award (European Union) for Optical Science and Technology 2009.

Mathur, Hirday Behari*

Elected: 1975
Specialization: Physical and Nuclear Chemistry, Material Science
Date and Place of Birth: 27 May 1928; Nasirabad, Rajasthan
Parents: Nawad Behari Mathur and Bhagwati
Spouse and Children: Santhi; one *s*, one *d*
Last Address: Defence Materials and Stores R & D Establishment, P. B. No. 320, Kanpur 208 013, India
***Deceased:** 12 January 1980

Education: Agra Univ: BSc 46; Delhi Univ.: MSc 48; Univ. of California, USA: PhD 54.

Career: Univ. of Delhi, Chem. Dept: All India Res. Fellow 48–50, Lecturer in Chem. 50–58; Univ. of California, USA, Lawrence Radiation Lab.: Res. Fellow 52–54; Enrico Fermi Inst. of Nuclear Studies, USA: Res. Assoc. 54–56; NCL, Poona: Sr Sci. Offr, Head of Phys. Chem. Dn 58–76; Defence Materials and Stores R & D Establishment, Kanpur: Dir 76–80.

Scientific Work: One of the pioneers to recognize the manifold applications of the Mossbauer effect in chemistry and actively pursue a programme to develop this discovery as a tool in chemical spectroscopy. Major achievement in the field of Mossbauer spectroscopy was the characterization of several spinel compounds containing Fe and Sn, the chemical effects of electron capture in solids, the nature of chemical bonding in iron organo compounds, and the mechanism of oxidation in silver-tin alloys. Work on the confirmation in solids of the hypothesis of Wexler that a molecule can sometimes virtually explode as a result of the coulombic repulsion when one of the constituent atoms is radioactive and decays by the electron capture has a very important bearing on the mechanism of radiation damage. Initiated a study on thermodynamics of complex ion formation with a view to clarify the mechanism of radiation protection by chemical protective agents such as aminoacids like cysteine. Also showed keen interest in carrying out applied research such as synthesis and properties of new types of glycol monoalkyl ethers for the control of water evaporation to extend the industrial utilization of the cotton seed oil.

Memberships: Member: Indian Chemical Soc.; American Physical Soc.; Intl Diffusion Res. Assoc. • Fellow: INSA 74; Soc. for Sigma Xi.

Awards & Distinctions: S S Bhatnagar Prize 73.

Mathur, Krishna Kumar*

Elected: 1934
Specialization: Geology; Mining
Date and Place of Birth: 30 July 1893; Kanpur, Uttar Pradesh
Parents: Swarup Lal Mathur and Larati Bibi
Spouse and Children: Rani, Gargi Devi Asthana; two *s*, two *d*
Last Address: Science College, Varanasi, India
***Deceased:** 18 July 1936

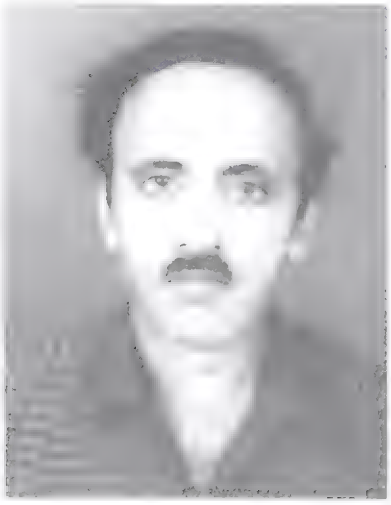
Education: Allahabad Univ.: BSc 15; Imperial College, London: Assoc. 19; Univ. of London: BSc 19.

Career: BHU, Varanasi, Dept of Geology, Mining and Metallurgy: Prof. 21–35; Sc. College: Principal 35–36.

Scientific Work: Path-breaking work on Mount Girnar and on problems of petrogenesis in the Deccan traps have been widely acclaimed. These dealt largely with the coexisting intrusive and effusive igneous rocks rather than basaltic flows. In the course of microscopic study of the rocks from this area, was able to recognize a new member of the Hastingsite group of amphiboles called girnarite, the physical, chemical and optical properties of which were described in a paper published in 1931. Study shed light on the genetic processes leading to the formation of different rock types. Mapped for the first time, the igneous complex of Girnar hills to the immediate east of the town of Junagadh.

Memberships: Fellow: INSA; Indian Sci. Congress • President: Geological Soc.

Mathur, Pradeep



Elected: 1996
Position: Prof., IIT Bombay
Specialization: Organometallics; Cluster Chemistry
Date and Place of Birth: 17 August 1955; Teheran, Iran
Parents: Amrit Dayal and Damyanti
Spouse and Children: Vinita; two *d* (Nehika, Saloni)
Address: Department of Chemistry, Indian Institute of Technology Bombay, Powai, Mumbai 400 076, India
Tel. (022) 2576 7180 (O), (022) 2576 8180 (R)
email: mathur@iitb.ac.in; URL: http://www.chem.iitb.ac.in/~mathur

Education: North London Univ.: BSc Hons 78; Keele Univ.: PhD 81.

Career: Yale Univ.: Res. Assoc. 82–84; IIT Bombay: Lecturer 84–87, Asst Prof. 87–90, Prof. 90–; Cambridge Univ.: Vis. Prof. 87; Freiburg Univ.: Vis. Prof. 92.

Scientific Work: Synthesis and structural aspects of organometallic chemistry: Methodology of using the lone pairs of some single atom ligands for addition of coordinatively unsaturated metal carbonyl fragments has generated a successful strategy for designed construction of metal cluster compounds. Controlled variation in the transition metal and main group elements can now be controlled; thus, it has been possible to obtain novel mixed-metal, mixed-chalcogen clusters. Identical cluster core geometries but with variable compositions has enabled several types of systematic studies to be made. The methodology has been extended to incorporation of organic fragments to chalcogen-bridged metal carbonyl clusters thus providing ways to modulate reactivity of isostructural clusters. Presence of transition metal, non-metal atoms in the cluster framework has been used to stabilize systems for various types of activation of small organic molecules. Carbon-carbon bond formation on such clusters has been achieved under facile conditions.

Important Publications: **(1)** *Organometallics* (2008) **27**, 5094. **(2)** *Dalton Trans.* (2007) 2594. **(3)** *Organometallics* (2005) **24**, 4793. **(4)** *Organometallics* (2004) **23**, 3694. **(5)** *Organometallics* (2002) **21**, 2215.

Awards & Distinctions: Fulbright Scholar 1995 • S S Bhatnagar Prize 2000 • Sir C V Raman Prize 2000 • Chemical Research Soc. of India Medal 2001 • DAAD Guest Professorship, Univ. of Karlsruhe 2002 • S C Bhattacharya Award for Excellence in Research 2005 • J C Bose National Fellowship 2007.

Mayor, Satyajit

Elected: 2002
Position: Prof., NCBS, Bangalore
Specialization: Cell Biology; Biophysics; Biochemistry
Date and Place of Birth: 26 January 1963; Baroda, Gujarat
Parents: Satyapal Mayor and Vinodini
Spouse and Children: Ayisha Abraham; one *s*
Address: National Centre for Biological Sciences, UAS-GKVK Campus, Bangalore 560 065, India
Tel. (080) 2366 6260 (O), (080) 2546 4058 (R)
email: mayor@ncbs.res.in; URL: http://www.ncbs.res.in/~faculty/mayor.html

Education: IIT Bombay: MSc Chem. 85; Rockefeller Univ., New York: PhD 91.

Career: Columbia Univ.: Postdoc Fellow 91–95; NCBS: Reader 95–2001; Assoc. Prof. 2001–, Prof.

Scientific Work: Aims to provide an understanding of the molecular mechanisms of endocytosis in metazoan cells. For scientists interested in studying cellular-scale phenomena, many principles from the physical sciences provide a powerful driving force in framing questions about the mechanisms of movement of molecules and organelles inside cells. Consequently has taken a multi-disciplinary approach, combining biology with physics and chemistry to address the main theme of research at NCBS. Developed and exploited digital imaging and quantitative fluorescence microscopy technologies to study the membrane organization, their sorting properties and the endocytic pathways of a variety of molecules. Most of the studies are carried out using state of the art image processing and quantitative fluorescence microscopy instrumentation. Method of choice is to study the organization and dynamics of fluorescently tagged molecules at different scales in living cells; from the nanometer scale in specialized domains in cell membranes to the micron scale prevalent in mapping endocytic pathways. Work in the laboratory was initiated in trying to understand the pathways and mechanisms involved in the endocytic pathway of lipid-anchored proteins. It has expanded along four main lines of inquiry about the endocytic pathways of molecules of special interest and about the endocytic mechanisms and pathways in different cell systems. The trajectory of this work led to explore the fine structure of the plasma membrane on the one hand, and on the other, to understand the cellular basis for variations in the eye colour of fruit-flies.

Memberships: Fellow: NASI 2004; TWAS • Assoc. Member: TWAS; American Soc. of Cell Biol.; Indian Soc. of Cell Biol.

Awards & Distinctions: Helen Hays Whitney Postdoc Fellowship 92–95.

Meher-Homji, Vispy Minocher

Elected: 1981
Specialization: Plant Ecology; Plant Geography; Bio-climatology
Date and Place of Birth: 18 January 1932; Bombay, Maharashtra
Parents: Minocher Jehangir Meher-Homji and Shirin
Spouse and Children: Kashmira; one s, two *d*
Address: 20D, Sagar Sangeet, 58, Colaba Road, Mumbai 400 005 India
Tel. (022) 2215 0120 (R)

Education: Univ. of Bombay: BSc Hons 53, MSc 55, PhD 62; Univ. of Toulouse, France: DSc 60.

Career: Institute Francais, Pondicherry, Dept of Ecology: Dir (Res.)

Scientific Work: Project in autoecology of weeds and synecology of plant associations of Bombay region carried out vegetation surveys of the entire peninsular India, south of 28 degree latitude North. Yet another project of cartography of the forests of Western Ghats at a bigger scale 1:250,000 was launched using satellite imageries. Participated actively on the phytosociology of the Rajasthan desert; contributed to a comparative plant-geographical study of the semi-arid zone of northern India with its southern counterpart in the Deccan. A corollary to forest mapping was the conservation aspect mainly identification of vegetational areas needing protection on priority basis to preserve the relics of gifts bestowed by mother nature. The bioclimates of the Indian sub-continent were described and mapped as per the biological classification of climates, and their analogous types established in the world. This facilitated the inter-exchange of economic species and to avoid the trial and error method of introducing species and to another without a scientific basis. Based on compilation of the Indian plant fossil record through the ages, built up a climo-vegetational history of the peninsula and within the frame-work of vegetation-climate relationship, the link between the forests and rainfall was investigated.

Important Publications: **(1)** *Forest ecology* (3 Vols) Oxford & IBH Publ. Co. **(2)** *Bioclimatology and plant geography of peninsular India*, Scientific Publishers. **(3)** On the floral elements of the semi-arid zones of India and their ecological significance, *New Phytologist* **64**, 330–342. **(4)** Phytogeography of the South Indian Hill Stations, *Bull. Torrey Botanical Club* **94**, 230–242. **(5)** Probable impact of deforestation on hydrological processes. *Climate Change* **19**, 163–173.

Memberships: Member: International Tree Crops Inst. (Indian Chapter) • Prix d-Honneur, L. Emberger & Ch. Chauvage Foundation of Ecology, Franc • Fellow: Palaeobotanical Soc.; Botanical Soc.; Intl Soc. of Tropical Ecology; INSA 88; NASI 89.

Awards & Distinctions: Pitambar Pant National Environment Fellowship 90 • Promoted to the rank of Officer in the Order of Palmes Academiques by the French Government.

Mehrotra, Ram Charan*

Elected: 1974
Specialization: Inorganic Organometallic Analytical Chemistry
Date and Place of Birth: 16 February 1922; Kanpur, Uttar Pradesh
Parents: Ram Bharose Mehrotra and Chameli
Spouse and Children: Suman; one *s*, two *d* (Piyush, Rashmi, Shalini)
Last Address: 4/162, Jawahar Nagar, Jaipur 302 004, India
***Deceased:** 11 July 2004

Education: Allahabad Univ.: BSc 41, MSc 43, PhD 48; London Univ.: PhD 52, DSc 64.

Career: Vigyan Kala Bhawan, Meerut: Sci. 43–44; Allahabad Univ.: Lecturer 44–54; Lucknow Univ.: Reader 54–58; Gorakhpur Univ., Faculty of Sci.: Prof., Dean 58–62; Univ. of Rajasthan: Prof. 62–82, Dean Sci. 62–65, Vice-Chancellor 68–69, 72, 73, Special Assistance Programme: Coordinator 79; Delhi Univ.: Vice-Chancellor 74–79; Allahabad Univ.: Vice-Chancellor 91–94.

Scientific Work: Made extensive contributions in the synthesis of polymetaphosphates; alkoxides; beta-diketonates; carboxylates; thiolates and dialkyl (alkylene) dithiophosphates of metals. Work on flame test of tin and gold as well as that on the precipitation of hydrated copper oxide often cited as outstanding. Contributions to novel types of indicators and especially the mechanism of their action are highly recognized and quoted. Applications of redox reagents like alkaline bromine, ceric, chromous and various salts extensively cited. Complexation studies of many systems with reagents have illuminated novel features of their co-ordinations. Synthesis and investigations on simple and complex alkoxy derivatives of almost all transition and main group metals have revealed highly exciting and novel features. Established the monomeric nature of titanium dichloride diacetylacetonate.

Important Publications: **(1)** Molecular design of precursors in: *Oxide ceramic materials in sol-gel processing for advanced materials* (1996) Oxford & IBH. **(2)** Recent advances in metal alkoxides chemistry: in *Progr. Inorg. Chem.* (1997) **46,** 239–454.

Memberships: Fellow: INSA 64; NASI 51; UK Royal Inst. of Chem.; Federation of Asian Chemical Soc. • President: Chem. Section, Indian Sci. Congress 67; Indian Chem. Soc. 76–77; Vignan Parishad, Allahabad.

Awards & Distinctions: S S Bhatnagar Award 65 • FICCI Award for Sci. & Technol. 75 • T R Seshadri Award 76 • Meerut Univ. DSc (hc) 76 • P C Ray Award • Platinum Jubilee Distinguished Service Award 88 • Atma Ram Award 89 • N R Dhar Memorial Award 91 • G P Chatterjee Award 91 • Acharya Narendra Dev Award 92 • Asuthosh Mukherjee Award 93 • Atma Ram Award 94.

Mehta, Chandra Lal

Elected: 1982
Specialization: Quantum and Statistical Optics; Mathematical Physics
Date and Place of Birth: 31 July 1938; Railmagra, Rajasthan
Parents: Pyar Chand and Jhamku Devi
Spouse and Children: Nirmala; two *s*, one *d*
Address: B–43, Gyandeep Apartments, Mayur Vihar Phase-I, New Delhi 110 091, India
Tel. (011) 2275 4903 (R)
email: mehtacl@hotmail.com

Education: Rajasthan Univ.: BSc 57; Delhi Univ.: MSc 59; Rochester Univ., USA: PhD 64.

Career: Univ. of Rochester, USA: Graduate Asst 61–63, Res. Assoc. 64, Asst Prof. 64–68, Sr Res. Assoc., Assoc. Prof. 68–70; IIT New Delhi: Prof. 70–99, Phys. Dept: Head 73–75; Post Graduate Studies: Dean 87–88; BHU: Vis. Prof. 65; NPL, New Delhi: CSIR Pool Offr 65; CEN de Saclay, France: Ingenieur Physician 76; West Virginia Univ., Morgan Town, WV USA: Vis. Prof. 83–84; KSU Manhattan, KS USA: Vis. Prof. 84–85.

Scientific Work: Work helped lay the foundations of quantum optics and clarified the fundamental concepts of coherence and correlation in statistical optics. Helped unravel the relationship between classical and quantum concepts of coherence.

Important Publications: **(1)** Relation between quantum and semi-classical description of optical coherence (1965) *Phys. Rev.* **138**, B274. **(2)** Diagonal coherent state representation of quantum operators (1967) *Phys. Rev. Lett.* **18**, 752. **(3)** *Theory of photoelectron counting; progress in optics* (1970) **8**, 373; North Holland Publications Co., Amsterdam. **(4)** Correlation theory of quantized electromagnetic fields I: Dynamical equations and conservation laws (1967) *Phys. Rev.* **157**, 1183. **(5)** Boson inverse operator and associated coherent states (1995) *Quantum and Statistical Optics* **7**, 877.

Mehta, Goverdhan

Elected: 1979
Position: CSIR Bhatnagar Fellow & Hon. Prof., IISc, Bangalore
Specialization: Synthetic Organic Chemistry; Natural Products Chemistry
Date and Place of Birth: 26 June 1943; Jodhpur, Rajasthan
Parents: K M Mehta and Mohini
Spouse and Children: Ranjana; one *s*, one *d*
Address: Department of Organic Chemistry, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 2367, (080) 2293 2850 (O), (080) 2360 0254 (R), Mobile: 98450 04994
email: gm@orgchem.iisc.ernet.in

Education: Univ. of Rajasthan: BSc 60, MSc 63; Univ. of Poona: PhD 66; Michigan State Univ., Ohio State Univ.: Postdoc Res. 68–69.

Career: NCL, Pune: Res. Fellow 63–66; IIT Kanpur: Lecturer & Asst Prof. 69–77; Univ. of Hyderabad: Prof. 77–93, Vice-Chancellor 94–98; IISc, Bangalore: Dir 98–2005; CSIR Bhatnagar Fellow 2005; Michigan State Univ., USA: Vis. Prof. 82; Univ. of Notre Dame, USA: Vis. Prof. 90; Univ. of Joseph Fourier, France: Vis. Prof. 91; INSA: Srinivasa Ramanujan Res. Prof. 92–97; National Sci. Council, Taiwan: Vis. Prof. 93; JNCASR, Bangalore: Hon. Prof. 90.

Scientific Work: Contributions include synthesis of natural products, design and molecular architecture of novel non-natural products, understanding of stereogenesis in addition to trigonal carbon centres, application of photochemistry in synthesis, assembly of new molecular arrays for molecular recognition and development of new reagents, and strategies for synthesis.

Memberships: Fellow: INSA 83; NASI 88; Royal Soc. 2005; TWAS 93; Indian Chemical Soc.

Awards & Distinctions: S S Bhatnagar Award 78 • Rajasthan Govt Science and Technol. Award 80 • FICCI Award in Physical Sciences 83 • G D Birla Award 92 • S Ramanujan Res. Professorship 92–97 • C V Raman Medal 2003 • Rajyotsava Award 2004 • Royal Soc. of Chemistry Centenary Lecturer 2005 • Trieste Science Prize 2007.

Mehta, Karam Chand*

Elected: 1935
Specialization: Mycology; Plant Pathology
Date and Place of Birth: 20 June 1892; Amritsar, Panjab
Children: one *s*, three *d*
Last Address: Department of Botany, Agra College, Agra, India
***Deceased:** 8 April 1950

Education: Government College, Lahore: MSc 14; Univ. of Cambridge: PhD 22, ScD 41.

Career: Agra College, Dept of Botany: Lecturer 15–23, Asst Prof., Prof. 23–50, Principal 45–50.

Scientific Work: Started work on the rust of *Launea* caused by *Puccinia butleri*. Then carried out investigations on the effect of temperature on the viability of uredospores of rust fungi attacking wheat and showed there is no local source of infection of wheat in the plains. Showed that *Berberis vulgaris* and *Thalictrum flavum*, the two most susceptible species of alternate hosts of the black and the brown rust fungi, respectively, do not occur in India. Intensive studies showed that a few species of these alternate hosts indigenous to India are just moderately susceptible. Based on an extensive survey of the periodicity of rust outbreak on wheat-growing regions throughout the country and studies on the dissemination of rust spores by air currents, showed that the foci of infection for all the three rust fungi attacking wheat lie in the hills. Suggested that rust epidemics could be controlled to a considerable extent by eliminating the inoculum at the source. To achieve this, advised the eradication of out of season wheat and barley plants in the hills and their replacement by oats which is not infected by these rust fungi, and the suspension of summer crops in the Nilgiri and the Palani hills by legislation. Also advised the breeding of resistant varieties suitable for cultivation in hills for that very purpose.

Memberships: Fellow: INSA 35; NASI • President: Bot. Section of Indian Sci. Congress.

Mehta, Madhukar Kapilrai

Elected: 1975
Specialization: Nuclear and Accelerator Physics, Nuclear Science
Date and Place of Birth: 24 July 1927; Bhavnagar, Gujarat
Parents: Kapilrai and Sagarika
Spouse and Children: Uma; two s
Address: 17, Sumeru Twin Bungalows, Vastrapur Road, Bodakdev, Ahmedabad 380 054, India
Tel. (079) 2685 0517 (R), Mobile: 98795 90517
email: mkmehta_india@yahoo.com

Education: Bombay Univ.: BSc 48, MSc 51; Univ., of Florida, USA: PhD 62.

Career: TIFR, Bombay, Accelerator Section: Res. Student 51–58, Res. Asst 59–64; BARC, Bombay, Nuclear Phys Dn: Sci. Offr 64–74, Head 74–81, Phys. Group Head, Assoc. Dir 81–83, 86–87; IAEA, Austria, Tech. Cooperation Dept: Intermediate Term Expert, Professional 83–89; Vikram Sarabhai Community Sci. Centre, Ahmedabad: Dir 89–94.

Scientific Work: Initiated, established and guided a programme of investigation of protein-nucleus optical potential for light-medium weight nuclides at energies below the coulomb barrier through a series of (p, n) reaction studies: establishing the energy dependence of the real and imaginary part of the nuclear potential. Resonance spectroscopy of light and medium weight nuclides at excitation energies between 5 and 20 MeV through excitation function measurements. One of the early pioneers of the use of fluctuations in excitation functions of reactions to extract the average compound nuclear life times, heavy ions reaction using 160 and 180 beams, discovery and identification of fission isomers in isotopes of Th, U and Pu. Contributions have been made in the measurement, evaluation and theoretical prediction of nuclear cross-sections required for nuclear energy applications played an important role in development and fabrication of small accelerators and initiated and established a programme in the use of accelerated ion beams for material surface modification, diagnosis and analysis and in the area of radiation physics.

Memberships: Fellow: Maharashtra Acad. of Sci. • Member: Indian Physics Assn, American Physical Soc.

Mehta, Subodhchandra Manmukhram*

Elected: 1952
Specialization: Physical and Inorganic Chemistry
Date and Place of Birth: 4 May 1902; Surat
Parent: M Krishnamukhram Mehta
Spouse and Children: Kulina; one s (Deepak)
Last Address: Godambi Villa, 423 First Road, Khar, Bombay 400 052, India
***Deceased:** 29 March 1970

Education: Univ. of Bombay: BA Hons 24, BSc 25; Royal Inst. of Sci., Bombay: MSc 28.

Career: Royal Inst. of Sci., Bombay, Dept of Chem.: Asst Lecturer 28–41, Lecturer 41–54, Prof., Head 54–60.

Scientific Work: Original contribution relates to the formation of new double sulphates of titanium and bivalent metals. Thermal decomposition of RSO_4, $Ti(SO_4)_2$ has been studied and found to be almost complete at 850 degree. Similar method was applied for extraction of titania from titaniferous minerals such as ilmenite and rutile. Extended work further and obtained compounds $RSO_4 \cdot TiOSO_4$ by treating solutions of RSO_4, $Ti(SO_4)$ with a solution of hydrogen peroxide. Sodium perborate which had received little or no attention as a reagent for organic oxidations was successfully utilized for oxidation of aniline, anisidine and series of para-substituted aromatic amines and for graded oxidation of polyhydric alcohols. Had undertaken the study of reaction between sodium sulphate and ammonium carbonate; and carbonation of sodium sulphate ammonia mixtures is an autoclave and in packed columns under varying conditions of temperature, molar ratio of reactants and dilutions. Showed that Didwana sodium sulphate could be utilised for the production of ammonium sulphate and soda ash. Undertook a study on the interesting reaction between solution of mercuric chloride and sodium phosphate and found that solutions of mercuric chloride and disodium hydrogen phosphate react to give $3HgO \cdot HgCl_2$ at 60 and 80 degree $2HgO \cdot HgCl_2$ at 30 degree and yellow substance formed soon after mixing the two solutions was isolated and found to be a probable mixture of mercury phosphate with an oxychloride of mercury. Undertook studies on the reaction between alkali hydroxide and zinc hydroxide and isolated sodium zincate.

Memberships: Fellow: London Royal Inst. of Chemistry; Indian Chemical Soc.; INSA 57; National Inst. of Sci.

Mehta, Vikram Bhagvandas

Elected: 1993
Position: Prof., School of Mathematics, TIFR, Mumbai
Specialization: Algebraic Geometry
Date and Place of Birth: 15 August 1946; Bombay, Maharashtra
Parents: B C Mehta and N Mehta
Address: School of Mathematics, Tata Institute of Fundamental Research, Homi Bhabha Road,
Mumbai 400 005, India
Tel. (022) 2278 2282 (O), (022) 2369 2725 (R)
email: vikram@math.tifr.res.in

Education: Bombay Univ.: BSc 66, MSc 68; Univ. of California: MA 70, PhD 76.

Career: Brandeis Univ., USA: Lecturer 76–77; TIFR: Vis. Fellow 77–79, Fellow 81–87, Reader 87–91, Assoc. Prof. 91, Prof. 91–; Univ. of Bombay: Lecturer 81–83.

Scientific Work: Has been working in geometric invariant theory, moduli of vector bundles, and Frobenius splitting. Also applied Frobenius splitting to problems in enumerative geometry and classical invariant theory. Also interested in the theory of semistable bundles in non-zero characteristic.

Memberships: Fellow: INSA 94; NASI 2000.

Awards & Distinctions: S S Bhatnagar Prize 91.

Menon, K N*

Elected: 1940
Last Address: Panthyil House, Warriam Road, Ernakulam 6, Kerala, India
***Deceased:** 1969

Education: MA; Univ. of London: PhD.

Career: Maharaja's College, Kerala, Dept of Chem.: Prof.; Univ. of Madras: Prof. of Organic Chemistry.

Menon, Kuruvakkat Kochu Govind*

Elected: 1975
Specialization: Biochemistry; Microbiology; Toxicology
Date and Place of Birth: 19 September 1927; Chittur, Palghat, Kerala
Parents: T Achyuthan Nayar and Thatha Amma
Spouse and Children: Tara; one *s*, one *d* (Anil, Mala)
Last Address: The Assam Company Limited, 52 Chowringhee Road, Calcutta 700 071, India
***Deceased:** 6 April 2002

Education: Madras Univ.: BSc 47; Bombay Univ.: MSc 52; Univ. of Toronto, Canada: PhD 56.

Career: Haffkine Inst., Bombay 47–53; Banting & Bast Inst., Canada: Res. Fellow 53–56; Univ. of Pittsburgh, USA, School of Medicine: Res. Fellow 56–57; Western Res. Univ., School of Medicine, USA: Asst Prof. 57–60; Univ. of Delhi: Asst Prof. at Patel Chest Inst. 59; St. Louis Univ., USA, School of Medicine: Asst Prof. 60–62; Hindustan Lever Res. Centre, Bombay: Section Manager 62–66, Head Biology Dn 66–74, Dir of Research 74–87; Natl Dairy Development Board: Principal Sci. Adviser 87–92; Assam Company Ltd, Calcutta: Tech. Dir 92.

Scientific Work: Involved in preparation of a plague vaccine using casein hydrolysate instead of blood agar; demonstrated biosynthesis of lecithin from phosphatidyl ethanolamine through vitamin B_{12} and methionine; formation & metabolism of malonyl CoA through transferase enzyme from pig heart; formation and metabolism of malonaldehyde CoA; enzymic carboxylation of butyryl CoA in 1959, and synthesis of glutaryl CoA in 1960; demonstration of increased ketogenesis by deacylation of aceto-acetyl CoA in diabetes; metabolism and utilisation of acetoacetate in human skin; mass production of nutritive foods in nutrition intervention programme; development of the concept of shadow nutrients indicating the possibilities of the use of lipoic acid in the treatment of diabetes; and of taurine in human infants for better health; and choline in very old people for better retention of memory.

Memberships: Fellow: INSA 87; NASI; Maharashtra Acad. of Sci.; Bombay Univ. Dept of Chemical Technol.; Indian Standards Institution • Chmn: Protein Foods and Nutrition Development Assn of India.

Awards & Distinctions: K A Kabbur Award 79 • DCM Ramaswamy Award 81 • JG Kane Award • OP Bhasin Award 86.

Menon, Mambillikalathil Govind Kumar

Elected: 1964
Position: Adviser, ISRO, Bangalore
Specialization: Cosmic Rays; Particle Physics
Date and Place of Birth: 28 August 1928; Mangalore, Karnataka
Parents: K Sankara Menon and M Narayaniamma
Spouse and Children: Indumati; one *s*, one *d*
Address: C-178, First Floor, Sarvodaya Enclave, New Delhi 110 017, India
Tel. (011) 2651 1454, (011) 2651 0825 (O), (011) 2696 6096 (R), Mobile: 98112 27719
email: mgkmenon@nic.in

Education: Jaswant College, Jodhpur: BSc 46; Royal Inst. of Sci.: MSc 49; Univ., of Bristol, UK: PhD 53; Postdoc Res. 55.

Career: TIFR: Reader 55–58; Assoc. Prof 58–60, Prof. 60–64, Sr Prof. & Dy Dir 64–66, Dir 66–75, Ministry of Defence, New Delhi: Secy 79–, Secy, Dept of Electronics 71–78; Scientific Adviser to Defence Minister, Secretary, Dept of Defence Res., and Dir General, DRDO 74–78; CSIR: Dir General 78–81; Dept of Environment: Secretary 80–81; DST: Secretary 78–82; Commission for Additional Sources of Energy: Chmn 81–82; Sci. Advisory Committee to the Cabinet: Chmn 82–85; Scientific Adviser to Prime Minister 86–89; Planning Commission Member 82–89; Minister of State for Sci. and Technol. 89–90; Minister of State for Education 90, Member: Rajya Sabha 90–96.

Scientific Work: Distinguished for investigations in the field of cosmic ray studies and in particular on the high energy interactions of elementary particles. Principal contributions have been to : nuclear emulsion techniques, especially leading to the use of large stripped emulsion stacks of volume up to 15 litres; elucidation of the properties of the strange particles; cosmic ray studies near the geomagnetic equator at high altitudes and particularly the development of the technique of flying plastic balloons of several million cu. ft volume with level flights over 10,00,00 ft as a dependable facility for high altitude research in India; deep underground studies in India relating to muons, neutrinos weak interactions and nucleon decay; this included establishing feasibility of experiments on neutrino induced and related new phenomena at great depths underground; first observations and analysis of natural neutrino interactions; observation of Kolar Gold Fields events; and first major dedicated experiment to look for nucleon decay lifetimes of around 10^{32} years with important observations on nucleon decay candidate events.

Memberships: Fellow: INSA 70; TWAS 83; Natl Inst. of Education; Royal Soc. of London 70 • Member: Pontifical Acad. of Sci. Rome 81 • President: Intl Council of Sci. Unions 88–93.

Awards & Distinctions: S S Bhatnagar Award 60 • Padma Shri 61 • Padma Bhushan 68 • ISCA Chatterjee Award 84 • Padma Vibhushan 85 • Om Prakash Bhasin Award 85 • Shiromani Award 88 • Univ. of Delhi, Allahabad, Roorkee, Bristol, BHU, Utkal, Aligarh Muslim, North Bengal, IIT: Madras, Kharagpur, Bombay DSc (hc) • Modi Award for Science 94.

Menon, Puliakote Kesava*

Elected: 1975
Specialization: Coding Theory; Combinatorial Mathematics; Number Theory
Date and Place of Birth: 4 September 1917; Alathur, Kerala
Last Address: A-2 Press Enclave, Malaviya Nagar Extenstion, New Delhi 110 017, India
***Deceased:** 22 October 1979

Education: Univ. of Madras: DSc 48.

Career: Joint Cipher Bureau, Ministry of Defence, New Delhi: Dir 58–77; ISI., New Delhi: Hon. Prof.

Scientific Work: A mathematician of international repute. Did commendable work on: multiplicative functions in number theory as well as other number theoretic problems with a bearing on special functions such as theta and zeta functions and problems in modern algebra with number theoretic bias; theory of finite groups, with application of combinatorial problems and number theory; and problems in set theory relating to certain special measurable sets. Work on ciphers for the defence department of India is recorded in the archives.

Memberships: Fellow: NASI; INSA 66 • Member: Indian Mathematical Soc.

Menon, T Bhaskara*

Elected: 1940
Specialization: Pathology
Last Address: Andhra Medical College, Vizakhapatnam, India
***Deceased**

Education: Univ. of Madras: MBBS, MD; Univ. of Edinburgh: DSc; Univ. of London: FRCP.

Career: Andhra Med. College, Vizakhapatnam: Prof. of Pathology.

Menon, Thanicklal Radhakrishnan*

Elected: 1963
Specialization: Fibre Science; Textile Physics and Textile Testing; Macro-economics of Textile Industry Trade
Date and Place of Birth: 14 April 1925; Kodungallur, Kerala
Parents: Ramakutty and Kartyayani
Spouse and Children: Padmaja; one *s*, one *d* (Anand, Mallika)
Last Address: Lakshmi Nivas, Press Club Road, Trivandrum 695 039, India
***Deceased:** 29 May 2001

Education: Univ. of Madras: BSc 44, MSc 47, PhD 50.

Career: Ahmedabad Textile Industries Res. Assoc., Ahmedabad, Phys. Dn: Dy Dir 51–69, Dir 80–90; Indian Jute Industries Res. Assoc., Calcutta: Dir 69–79.

Scientific Work: Measured temperature variation of refractive indices of crystals in UV and visible regions from liquid air temperature to over 300° C. Explained the results in terms of existing theories; set up a school for studying X-ray crystallinity, crystallite orientation, SAXS, and optical and rheological properties of cotton fibres modified by intra-crystalline swelling and stretching. Several new results emerged; invented new tools and instruments for measuring textile and polymer properties of basic as well as applied interest; made an analytical study of world manufacture and trade in textiles and clothing, with special reference to what India should do.

Memberships: Fellow: Indian Standards Institution.

Menon, Thuppalay Kochugovinda

Elected: 1974
Specialization: Astrophysics
Date and Place of Birth: 13 June 1928; Tattamangalam, Kerala
Parents: C Achuthan Nair and T Thankam Amma
Spouse and Children: Rama Bai; one *s*, one *d*
Address: 5042350, West 39th Avenue, Vancouver, British Columbia V6N 179, Canada
Tel. (+1-604) 822 0330 (O), (+1-604) 266 1789 (R)
email: menon@astro.ubc.ca

Education: Annamalai Univ.: BSc Hons 47; IISc, Bangalore: Diploma 50; Harvard Univ.: SM 53, PhD 56.

Career: Harvard Univ., USA: Agassiz Radio Astronomer 56–58; Univ. of Pennsylvania, USA: Asst Prof. 58–60; National Radio Astronomy Observatory: Assoc Sci. 60–65, Sci. 65–67; Univ. of Hawaii: Prof. 67–71; TIFR, Bombay: Prof. 71–79; Univ. of British Columbia, Canada, Dept of Geophysics and Astronomy: Prof. and Head 79–89, Prof. 89–93, Prof. Emeritus 93.

Scientific Work: Investigated the effects of violent star formation on the interstellar medium and identified, for the first time, the occurrence of large scale expanding structures caused by star formation. Showed for the first time that HII regions such as the Orion nebula have lifetimes as short as 10,000 years and developed models of gas and star distributions in such nebulae. Studied the velocity distribution of OH emission regions in the vicinity of HII nebulae and showed that such regions may be the final stage of collapse of star clusters. Investigated the radio spectra of quasars and found that compact radio sources have fine structure within them. Showed for the first time that quasars at larger redshifts have smaller sizes than nearby quasars of the same luminosity, suggesting that interstellar conditions in parent galaxies at early epochs were significantly different than at present epochs. Presently investigating the effects of interactions on the radio emission from galaxies by studying the radio emission from compact groups of galaxies. The results suggest that interactions as such are not likely to be the dominant mechanism for the production of activity in the nuclei of galaxies and quasars.

Awards & Distinctions: J N Tata Scholar 52–54 • Gordon McKay Scholar 53.

Menon, V Krishna Narayana*

Elected: 1941
Specialization: Medicine
Last Address: Andhra Medical College, Vizakhapatnam, India
***Deceased**

Education: Univ. of Madras: MBBS.

Career: Andhra Medical College, Vizakhapatnam: Prof. of Biochemistry.

Awards & Distinctions: Hobart Prize • Ramachandra Naidu Medallist • Johnstone Medallist.

Merchant, Jayasukhlal Ranchoddas*

Elected: 1964
Specialization: Organic Chemistry of Natural Products; Synthetic Organic Chemistry
Date and Place of Birth: 14 June 1922; Bombay, Maharashtra
Parents: Ranchoddas and Motiben
Last Address: 62, Bharat Mahal, Dongersi Road, Walkeshwar, Bombay 400 006, India
***Deceased:** 8 February 2004

Education: Bombay Univ.: BSc Hons 44, MSc 46, PhD 49; Zurich Univ.: DSc 52.

Career: NCL, Pune: CSIR Fellow 53–54; Inst. of Sci., Bombay, Dept of Organic Chem.: Assoc. Prof. 54–67, Prof. 67–80, Head 67–80, Emeritus Prof. 80; DG Ruparel College, Bombay: Hon. Prof.; SNDT Womens Univ., Bombay: Vis. Prof.

Scientific Work: Worked on Indian medicinal plants; isolation and structure elucidation of alkaloids from *Alangi lamarki;* isolation of constituents of indigenous plants reported to have anti-tumour activity; cyanoethylation of hydroxy and amino compounds; synthesis of xanthones, acridines, flavonones. Studied action of thionyl and sulphuryl chlorides on flavonones; reactions of hexachloropropene on organic compounds; studied synthesis of spirobenzopyrene and their reactions; studied reactions of alpha, beta unsaturated acids; synthesis and reactions of several heterocyclic compounds, new rings systems, etc.

Memberships: Fellow: London Royal Inst. of Chem.; American Chemical Soc.; Inst. of Chemists.

Merh, Sukumar Shyamlal

Elected: 1984
Specialization: Structural Geology; Himalayan Geology; Quaternary Geology
Date and Place of Birth: 2 October 1928; Patan, Gujarat
Parents: Shyamlal Merh and Chandraprabha
Spouse and Children: Anjali; one *s* (Advait)
Address: Flat 5, 5, Idmiston Road, Worcester Park, Surrey K74 7SE, London, UK
Tel. (+44-20) 8330 1225 (R)

Education: BHU, Varanasi: BSc 46, MSc 48; Univ. of London, UK: PhD 60; Imperial College, UK: DIC 60.

Career: M S Univ., Baroda, Dept of Geology: Prof. 63–72, Sr Prof. 72–88; INSA: Sr Sci. 89–91.

Scientific Work: Worked on the Moinian rocks of Scottish Highlands, emphasizing on the structural complexities of study area. Initiated research programmes in Himalayan geology and quaternary geology. Mapped the structural and metamorphic aspects of parts of Kumaon and Central Nepal Himalayas. Investigated various aspects of the quaternary geology of Gujarat.

Important Publications: **(1)** *Geology of Gujarat* (1995) Geological Society of India, 222 pp. **(2)** Vedic Sarasvati (1990) Geological Society of India, *Memoir* **42**, 329 pp. **(3)** The great Rann of Kachchh: Perceptions of a Field Geologist (2005) *J. Geol. Soc. India* **65**, 9–25.

Memberships: Fellow: INSA 82; NASI 88.

Awards & Distinctions: D N Wadia Medal.

Metcalfe, Edward Parr*

Elected: 1934
Specialization: Physics; Pure and Applied Mathematics; Astronomy
Date of Birth: 1881
Last Address: University of Mysore, Mysore, India
***Deceased:** 1950

Education: Univ. of London: DSc.

Career: Univ. of Mysore, Mysore: Prof. of Physics Vice-Chancellor 30–37; Central College, Bangalore: Principal.

Scientific Work: Study of the physics of elementary and compound gases and vapours, more particularly of their optical and electrical properties. Instrumental in establishing a residential college for women in Mysore in science and arts in 1930. Also set up the first short wave entertainment and public broadcasting station (VU6AH) in India.

Mirza, M B*

Elected: 1935
Last Address: Zoological Laboratories, Muslim University, Aligarh
***Deceased**

Education: DSc.

Career: Muslim Univ., Aligarh, Zoological Laboratories: Dir.

Mishra, Akhilesh Chandra

Elected: 2009
Position: Dir, National Inst. of Virology, Pune
Specialization: Epidemiology of Viral Infections of Public Health Importance Zoonotic Disease; Diagnostics and Vaccine Development.
Date and Place of Birth: 1 July 1950; Jaunpur, Uttar Pradesh
Parent: Rajmani Mishra
Spouse and Children: Shivdevi; 3 children
Address: National Institute of Virology, Pune 411001, India
Tel. (020) 2600 6100 (O), (020) 2587 0302 (R), Mobile: 99701 78555
email: acm1750@rediffmail.com

Education: Univ. of Gorakhpur: MSc 70; Univ. of Pune: PhD 76.

Career: National Inst. of Virology: Pune Dir 2004–.

Scientific Work: Led investigations on Chikungunya fever outbreak in India, which was reported after 32 years. Phylogenic analysis based on partial sequences of NS4 and E1 genes showed that all earlier isolates were Asian genotype, whereas the current and Yawat (2000) isolates were African genotype. Full genome sequencing of the strains collected earlier and during this outbreak has provided useful information regarding mutations, evolution of the virus and probable relationship of these factors with high transmissibility and pathogenesis of the current strains. An outbreak of highly pathogenic avian Influenza (H5N1) was reported from India during February 2006. Participated in containment of the disease and monitoring of possible infection in humans. Extensive field work and screening of large number of suspected cases was carried out on war footing. Fortunately, no human cases were detected. Undertook full genome characterization and concluded that the virus that caused outbreak belonged to genotype Z, sub-clade 2.2. Possibility of introduction of the virus through migratory bird was highlighted due to the studies. Contribution towards development of comprehensive biosafety laboratories is noteworthy. A fairly large modern BSL3+ laboratory has been constructed, which also includes area for animal experimentation.

Important Publications: **(1)** Characterization of complete genome of influenza A (H5N1) virus isolated during the 2006 outbreak in poultry in India (2008) *Virus Genes.* **(2)** *Chandipura virus* – a major cause of acute encephalitis in children in north Telangana, Andhra Pradesh, India (2007) *J. Med. Virol.* **80**, 118–124. **(3)** Genetic divergence of Chikungunya viruses in India (1963–2006) with special reference to the 2005–2006 explosive epidemic (2007) *J. Gen. Virol.* **88**, 1967–1976. **(4)** West Nile Virus isolates from India: evidence for a district genetic lineage (2007) *J. Gen. Virol.* **88**, 875–884. **(5)** Encephalitis: A newly recognized disease of public health importance (2007) *Emerging Infections,* ASM Press, Washington D.C. 121–137.

Memberships: Fellow: Maharastra Acad. of Sci.

Mishra, Gyan Chandra

Elected: 2005
Position: Dir, NCCS, Pune
Specialization: Immunology; Cell Biology
Date and Place of Birth: 15 August 1947; Jigina, Uttar Pradesh
Parents: Baijnath Mishra and Kishori Devi
Spouse and Children: Sudakshina; two *s*, one *d*
Address: National Centre for Cell Science, NCCS Complex, Ganeshkhind, Pune 411 007, India
Tel. (020) 2569 1065 (O), (020) 2569 1064 (R), Mobile: 94225 22705
email: gcmishra@nccs.res.in

Education: Univ. of Gorakhpur: BSc 66; MSc 68; Univ. of Udaipur: PhD 75.

Career: Bareilly College: Lecturer 68–69; Univ. of Udaypur: Postdoc 69–71, Asst Prof. 71–75, Postdoc 75–77; CDRI, Lucknow: Pool Offr 78–80; South Methodist Univ., USA: Postdoc Res. Assoc. 80–82; Univ. of Texas, USA: Res. Assoc. 82–87; IMTECH, Chandigarh: Sci. 87–95; Natl Centre for Cell Sci., Pune: Dir 95–.

Scientific Work: Contributions have chiefly centred around the fundamentals of immunology. Identified three novel stimulation molecules for the first time viz – M150, B2 and B3 which are macrophage and B Cell specific co-stimulatory molecules. This discovery has added more colour to these molecules as the three have dual role in cells i.e they exist in the cell as one popularly known form while the other form acts as a co-stimulatory molecule. The observations have phenomenal importance in the role of co-stimulation in T Cell signalling.

Memberships: Fellow: NASI 95; INSA 2006.

Awards & Distinctions: Padma Shri • Ranbaxy Res. Foundation Award for Excellence in Medical Sci. 2002.

Mishra, Manoj Kumar

Elected: 1999
Position: Prof., IIT Bombay
Specialization: Electronic Structure Theory; Photo/Collisional Dynamics; Photoelectrochemistry
Date and Place of Birth: 15 October 1952; Begusarai, Bihar
Parents: Shivakumar Mishra and Suriayana
Spouse and Children: Meena; one *s*
Address: Department of Chemistry, Indian Institute of Techonology Bombay, Powai, Mumbai 400 076, India
Tel. (022) 2576 7158, (022) 2576 4169 (O), (022) 2577 0871 (R)
email: mmishra@iitb.ac.in; URL: www.chem.iitb.ac.in/~mmishra

Education: Ranchi Univ.: BSc 72; IIT Delhi: MSc 74; Univ. of Florida: PhD 81, Chmn GATE 2009.

Career: IIT Bombay: Asst Prof. 86–90, Assoc. Prof. 90–95, Prof. 95–; Princeton Univ.: Vis. Assoc. Prof. 94.

Scientific Work: Formulated and implemented the complex scaled electron propagator based on a bi-variational complex SCF for structural and a time dependent wave packet based method for dynamical characterization of electron scattering resonances. Provided new scenarios based on field optimized initial state based laser assisted selective control of bond dissociation.

Important Publications: **(1)** Characterization of shape and Auger resonances using the dilated electron propagator method (1996) *Adv. Quantum Chem.* **27**, 223. **(2)** Higher order decouplings of the dilated electron propagator with applications to ^{2}P Be$^-$, ^{2}P Mg$^-$ shape and 1S^{-1} ^{2}S Be$^+$ Auger resonances (2001) *J. Chem. Phys.* **114**, 35. **(3)** A simplification of selective control using field optimized initial state: with application to HI and IBr photodissociation (2000) *J. Chem. Phys.* **113**, 2336. **(4)** Simple systematization of vibrational excitation cross section calculations for resonant electron-molecule scattering in the boomerang and impulse models (2007) *J. Chem. Phys.* **126**, 044309. **(5)** Role of photolysis frequency in enhanced selectivity and yield for controlled bond breaking in HOD (2008) *J. Phys. Chem.* **A112**, 4895.

Memberships: Member: Phi Beta Kappa 81 • Fellow: NASI 99.

Awards & Distinctions: S C Bhattacharaya Award for Excellence in Pure Sciences 2008 • M N Saha Award for Theoretical Sciences 2000.

Mishra, Ratan Shanker*

Elected: 1966
Specialization: Differential Geometry; Relativity and Fluid Mechanics
Date and Place of Birth: 10 August 1918; Unnao, Uttar Pradesh
Parents: Kali Charan Mishra and Phool Dulari
Spouse and Children: Shanti; one s, one *d* (Pradeep, Anjali)
Last Address: B-71, Nirala Nagar, Lucknow 226 020, India
***Deceased** 23 August 1999

Education: Univ. of Lucknow: BSc Hons 42, MSc 43; Delhi Univ.: PhD 47; Univ. of Lucknow: DSc 52.

Career: Ramjas Higher Secondary School, Delhi: Teacher 44–48; Delhi College, Delhi Univ.: Lecturer 48–49, Reader 54–58; Lucknow Univ.: Lecturer and Reader in Maths 49–54, Vice-Chancellor 82–86; Gorakhpur Univ.: Prof. and Head of Mathematics 58–63, 80–81; BHU, Varanasi, Dept of Maths: Prof. and Head 63–68, 68–78; Faculty of Sc.: Dean 72–75; Univ. of Allahabad: Prof. and Head 70; Univ. of Kuwait 72–86, Univ. of Waterloo, Canada 67, and Univ. of Windsor, Canada: Vis. Prof. 74; Kanpur Univ.: Vice. Chancellor 78–80.

Scientific Work: Gave most general solutions of Einstein's unified field theory and did pioneering work on Einstein–Maxwell null and non-null electro-magnetic fields. Developed in differential geometry, own notation and contributed a good deal in non-index notation to different types of structures on a differentiable manifold. Worked on applications of geometry to the theory of shock waves which are well known.

Important Publications: **(1)** Einstein's connections: I,II Non-degenerate case, III Degenerate case of II Class, IV Another method (1958) *Tensor NS* **9**, 8–43. **(2)** Einstein–Maxwell field equations (1962) *Rend. del Cir Mat. di Palermo Serie II* **11**, 157–171. **(3)** Geometry of electromagnetic null field (1963) *Rend. del Cir Mat. di Palermo Serie II* **12**, 155–171. **(4)** Structures on a differentiable manifold (1978) *INSA Sci. Rep.* 1–56. **(5)** Almost contact metric manifolds and their applications (1991) *Tensor Soc. India*, pp. 1–64.

Memberships: Fellow: INSA 60; NASI.

Awards & Distinctions: Padma Shri 71 • President: ISCA 74; Natl Acad. of Maths, India; Tensor Soc. of India.

Mishra, Santosh Kumar

Elected: 1987
Specialization: Dynamic Meteorology; Numerical Modelling of the Atmosphere
Date and Place of Birth: 1 March 1941; Khajuha, Uttar Pradesh
Parents: Brij Behari and D Devi
Spouse and Children: Sushma; one *s*, one *d* (Amit, Pratibha)
Address: B-1/103, Nirminti Horizon, New DP Road, Aundh, Pune 411 007, India
Tel. (020) 2589 0369 (R)
email: skmishrapune@rediffmail.com

Education: Agra Univ.: BSc 61; Aligarh Muslim Univ.: MSc 63; Poona Univ.: PhD 83.

Career: Aligarh: Lecturer in Phys. 63–65; IITM: Sr Sci. Asst 65–70, Jr Sci. Offr 70–72, Sr Sci. Offr 72–81, Asst Dir 81–88, Head Computer Dn 82–87, Head, Theoretical Studies Dn 76–93, Dy Dir 88–93; Andhra Univ., Dept of Meteorology: Vis. Sci. 89–92; Natl Centre for Medium Range Weather Forecasting, New Delhi: Dir General 93–97; INPE, S J dos Campos, Brazil: Vis. Sci. 97–2000, 2004–05.

Scientific Work: Contributed to the understanding of the origin and development of atmospheric disturbances associated with Indian southwest monsoon and of global monson circulation. Specialized in using spectral techniques in modelling and other dynamical studies. Developed fully indigenously primitive equation barotropic and multi-level global spectral models.

Important Publications: **(1)** Diabatic heating model of the Indian monsoon (1975) *Mon. Weather. Rev.* **103**, 115–130. **(2)** Role of baroclinic instability in the development of monsoon disturbances (1980) *J. Atom. Sci.* **37**, 383–394. **(3)** On the computational efficiency of a primitive equation barotropic hemispheric spectral model (1980) *Contrib. Atmos. Phys.* **54**, 72–85. **(4)** A primitive equation barotropic instability study of the monsoon onset vortex (1979) *Q. J. R. Meteorol. Soc.* **11**, 427–444. **(5)** Genesis of the northeast Brazil upper tropospheric cyclonic vortex: A primitive equation barotropic instability study (2007) *J. Atom. Sci.* **64**, 1379–1392.

Memberships: Member: National Committee for World Climatic Res. Programme (WCRP) • Fellow: INSA 90; Indian Geophysical Union.

Awards & Distinctions: WMO Res. Award 81 • Indian SAARC Regional Award for Young Scientists 84 • Biennial Mausam Award 86–87.

Misra, Gadadhar

Elected: 1999
Position: Prof., IISc, Bangalore
Specialization: Operator Theory; Operator Spaces
Date and Place of Birth: 1 March 1956; Digapahandi, Orissa
Parents: Chakrapani Misra and Arunabala
Spouse and Children: Tanuja; one *d* (Neeldhara)
Address: Department of Mathematics, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2712 (O), (080) 2341 2348 (R), Mobile: 94498 17021
email: gm@math.iisc.ernet.in, gadadhar.misra@gmail.com; URL: http://math.iisc.ernet.in/~gm

Education: Utkal Univ.: BSc 77; Sambalpur Univ.: MSc 79; SUNY, USA: PhD 82.

Career: Univ. of Georgia: Asst Prof. 82–84; Univ. of California: Asst Prof. 84–85; ISI: Vis. Sci. 85–86, Lecturer 86–89, Assoc. Prof. 89–93, Prof. 93–2007; IISc Prof. 97–.

Scientific Work: Counter examples to an important conjecture of Cowen and Douglas on similarity have been found. An explicit description of the class of completely non-unitary contractions whose characteristic function is constant is given. A canonical model as well as complete invariants for a class of quotient Hilbert modules have been obtained. The notion of quasi-free Hilbert modules has been introduced in order to generalize parts of the Sz.–Nagy–Foias model theory to the context of multivariate operator theory. A classification of scalar homogeneous shifts has been obtained. Also the joint Taylor spectrum of a class of multiplication operators on the twisted Bergman space has been calculated. The holomorphic Hermitian vector bundles over the unit disc which are homogeneous under the action of SL (2,R) have been described. The unitary equivalence class of the irreducible homogeneous operators in the Cowen–Douglas class whose associated unitary representations are multiplicity free have been explicitly determined and a classification of all irreducible homogeneous operators in the Cowen–Douglas class have been completed. A question of Cowen–Douglas on the minimal set of unitary invariants has been answered.

Important Publications: **(1)** Equivalence of quotient Hilbert modules (2008) II. *Trans. Am. Math. Soc.* **360**, 4, 2229–2264. **(2)** Homogeneous operators on Hilbert spaces of holomorphic functions (2008) *J. Funct. Anal.* **254**, 9, 2419–2436. **(3)** The homogeneous shifts (2003) *J. Funct. Anal.* **204**, 2, 293–319. **(4)** Curvature and the backward shift operators (1984) *Proc. Am. Math. Soc.* **91**, 1, 105–107. **(5)** On curvature and similarity (1983) *Michigan Math. J.* **30**, 3, 361–367.

Memberships: Fellow: INSA 2009.

Awards & Distinctions: S S Bhatnagar Prize 2001 • J C Bose National Fellowship 2008.

Misra, Krishna Behari

Elected: 1983
Position: Principal Consultant, Rams Consultants, Jaipur
Specialization: Reliability; Maintainability; Risk & Safety Engineering; Performability Engineering
Date and Place of Birth: 23 January 1943; Kota, Rajasthan
Parents: C L Misra and Saraswati
Spouse and Children: Veena; one *s*, two *d*
Address: 71, Vrindaban Vihar, Krishna Kutir, Ajmer Road, Mandir Marg, Jaipur 302 019, India
Tel. (0141) 281 1080 (R), Mobile: 94140 44080
email: kbmisra@gmail.com; URL: http://www.ijpe-online.com; http://www.ramsconsultants.org

Education: Univ. of Baroda: BE 63; Univ. of Roorkee: ME 66, PhD 70.

Career: PMV Polytechnic, Mathura: Lecturer in Electrical Engg 63–64; Univ. of Roorkee, Dept of Electrical Engg: Res. Fellow 64–66, Lecturer 66–71, Reader 71–76, Prof. 76–80; Tech. Univ., West Germany: DAAD Fellow 72–73; GRS Garching, West Germany: Sr. Humboldt Fellow 73–74, 87–88; RWTH Univ. of Aachen, West Germany: Vis. Sci. 78; IIT Kharagpur: Prof. of Electrical Engg 80–05, Dean of Inst. for Planning & Development 90–92, Reliability Engg Centre, Kharagpur: Founder Head 83–87; Kernforschungszentrum, West Germany: Vis. Prof. 87–88; Natl Environmental Engg Res. Inst., Nagpur: Dir-Grade-Sci. 92–94; North Eastern Regional Inst. of Sci. & Technol., Nirjuli, Itanagar: Dir 95–98.

Scientific Work: Introduced graph theory approach for reliability assessment, improvement of reliability design against catastrophic and tolerance failures, risk modelling and assessment, development of reliability analyser, introducing fuzzy sets theory for nuclear power plants performance assessment, power system security studies, etc.

Important Publications: **(1)** *Reliability analysis & prediction: A methodology oriented treatment* (1992) Elsevier, pp. 889. **(2)** *New trends in system reliability evaluation* (1993) Elsevier pp. 715. **(3)** *Clean production: Environmental and economic perspectives* (1995) Springer Verlag, pp. 853. **(4)** *Principles of reliability engineering* (2005) RAMS Consultants, pp. 450. **(5)** *Handbook of performability engineering* (2008) Springer, UK, pp. 1316.

Memberships: Fellow: Safety & Reliability Soc., UK; Institute of Engineers; IETE.

Awards & Distinctions: Lal C Verman Award 83.

Misra, Usha Kant

Elected: 2003
Position: Prof. and Head, Sanjay Gandhi PG Inst. Medical Sci. Lucknow
Specialization: Clinical Neurology; Neurophysiology; Tropical Neurology
Date and Place of Birth: 10 April 1952; Azamgarh, Uttar Pradesh
Parents: K K Misra and Annapurna
Spouse and Children: Sunita; two s
Address: Neurology Department, Sanjay Gandhi PG Institute of Medical Sciences, Rai Bareily Road,
Lucknow 226 014, India
Tel. (0522) 266 8800, (0522) 266 8700 (O), (0522) 220 5931 (R), Mobile: 94506 53685
email: ukmisra@sgpgi.ac.in, drukmisra@rediffmail.com; URL: www.sgpgi.ac.in

Education: Univ. of Lucknow: MBBS 75; MD 78; Natl Acad. of Med. Sci.: MNAMS 79; KG's Med. College: DM 85; Natl Acad. of Med Sci.: FAMS 99.

Career: ITRC, Lucknow: Sci. 80–87; KGMC, Lucknow: Lecturer 87; SGPGIMS, Lucknow: Addl Prof. and Head 87–93, Prof. & Head 93–.

Scientific Work: The main contributions are in the field of clinical neurophysiology which includes: the documentation of maturation of peripheral nervous system in neonates, infants and children; demonstration of the involvement of small and medium size motor pathways in neurolathyrism; and identification of the importance of primary motor area and its connections in producing motor deficit and recovery in patients with stroke. Questioned the role of ipsilateral motor pathways in stroke recovery and showed that ipsilateral motor evoked potential (MEP) responses are an artifact. Highlighted the ominous significance of MEP abnormalities on non-hemiplegic side and attributed it to brain herniation in stroke patients. The demonstration of the involvement of anterior horn cells in Japanese encephalitis and transverse myelitis employing EMG and MEP studies by the group has provided new insights about these diseases. More recently, showed the involvement of thalamus and its connections in the genesis of Parkinsonian features and dystonia in patients with Japanese encephalitis which have been reported to be associated with this disease for the first time by the group.

Important Publications: **(1)** Valproate vs phenytoin in status epilepticus: a pilot study (2006) *Neurology* **67**, 2, 340–342. **(2)** Radiological and neurophysiological changes in Japanese encephalitis (1994) *J. Neurol. Neurosurg. Psychiat.* **57**, 1484–1487. **(3)** Recurrent hypertensive intracerebral haemorrhage (1995) *Am. J. Med. Sci.* **310**, 156–157. **(4)** Movement disorders in Japanese encephalitis (1997) *J. Neurol.* **244**, 5, 299–303. **(5)** MRI in Japanese encephalitis (1997) *Neuroradiology* **39**, 180–184.

Memberships: WHO Fellowship in Clinical Neurophysiology 86 • Fellow: NAMS; Indian College of Physicians; Indian Acad. of Neurology • Corresponding Fellow: American Acad. of Neurology.

Awards & Distinctions: K B Kunwar Memorial Award • Rathinavellu Subramaniyan Endowment Oration 98 • Kapil Sood Oration 2000.

Mistry, Kekhushroo Bamanshaw

Elected: 1975
Specialization: Soil Science; Fertilizers; Agrochemicals
Date and Place of Birth: 13 January 1936; London
Parents: Bamanshaw Mistry and Nergish
Spouse and Children: Nina; two *s*
Address: 52, Sunshine, Dr. Rajaballi Patel Road, Mumbai 400 026, India
Tel. (022) 2351 7387, (022) 2351 0564 (R), Mobile: 97730 77329

Education: Gujarat Univ.: BSc Hons 53, MSc 55; Univ. of Delhi: PhD 63.

Career: IARI, New Delhi: Res. Fellow 55–60; Univ. of Oxford, Dept of Agri. & ARC Radiobiological Lab., UK: IAEA Res. Fellow 61–63; BARC, Biology and Agri. Dn, Bombay: Sci. Offr 60–84; FAO/IAEA Dn of Atomic Energy, Austria: Sr Professional 77–79; Godrej Soaps Ltd and Godrej Agrovet Ltd, Bombay: Res. Consultant 85.

Scientific Work: Investigated the levels of natural high background radiation in monazite-bearing areas of Kerala coast, and the effects of such radiation on plant and human populations in these areas. Evaluated the agronomic efficiency for cereal and plantation crops and transformations in soils of new fertilizer materials including polyphosphates, nitrophosphates, indigenous and modified phosphate rocks, and micronutrient carriers on principal soil types of India, Indonesia and Sri Lanka. Developed a unique neem-based coating agent for urea fertilizer which markedly enhances its crop use efficiency under diverse agro-climatic conditions; first-ever brassinosteroids (new group of endogenous plant hormones)-based plant growth promoter formulations; and, novel neem and *Anona*-based antifeedant and insect growth inhibitor formulations for effective control of important crop pests. Developed the only selective herbicide for cotton in India.

Important Publications: **(1)** Evaluation of the long-term effects of high background radiation on selected population groups of Kerala Coast (1971) *Proc. 4th UN International Conf. Peaceful Uses of Atomic Energy*, Geneva **11**, 31–51. **(2)** Studies of the uptake of plutonium from major Indian soils and its distribution in plants (1978) *J. Environmental Quality* **7**, 533–536. **(3)** Reaction products of ammonium nitrate phosphates fertilizers of varying water-soluble phosphorus content in different Indian soils (1986) *Fertilizer Res.* **10**, 56–71. **(4)** Effects of 28-homobrassinolide on yields of wheat, rice, groundnut, mustard, potato and cotton (1997) *J. Agri. Sci. (Cambridge)* **128**, 405–413. **(5)** Evaluation of fungal pathogen and chemical herbicide for control of *Trianthema portulacastrum* (2009) *J. Eco-friendly Agriculture* **4**, 2, 162–166.

Mitra, Ashesh Prosad*

Elected: 1974
Specialization: Radio and Space Science; Radio Communication
Date and Place of Birth: 21 February 1927; Calcutta, West Bengal
Parents: Ambika Charan and Subarana Prova
Spouse and Children: Sunanda; two *d*
Last Address: National Physical Laboratory, K S Krishnan Road, New Delhi 110 012
***Deceased:** 3 September 2007

Education: Calcutta Univ.: BSc 46, MSc 48, PhD 55.

Career: Calcutta Univ. Scheme of 25 Ionospheric Investigations: Res. Asst 51; CSIRO, Australia, Dn of Radiophysics: Colombo Plan Fellow 51; Defence Res. Telecommunication Establishment, Canada: Consultant 52; Pennsylvania State Univ., USA: Vis. Asst/Assoc. Prof. of Engg Res. 51–54; CSIR, New Delhi: Secretary, Radio Res. Committee 54–56; NPL, New Delhi: Asst Dir 58–64, Dy Dir & Head of Radio Sci. Dn. 64–74, Sci. and Head of Radio Sci. Dn 74–82, Dir 82–86; CSIR.: Dir Gen. 86–91; Govt of India, Dept of Scientific & Industrial Res., New Delhi: Secretary 86–91.

Scientific Work: Major work has been in the field of earth's near-space environment, especially in ionosphere, and aeronomy, through ground-based and space techniques and pioneering research in the emerging areas of ionospheric chemistry, stratosphere-mesosphere coupling and the crucial role played by minor constituents in the lower ionosphere and mesosphere and in environment control. Pioneered work on cosmic radio noise to study the upper atmosphere leading to a series of discoveries in ionosphere, solar physics and cosmic rays. Contributed substantially to the establishment and operation of the International Spacewarn System and the International Ursigramme and World Day Service. Concentrated recently on the scientific aspects of global environment hazards of human activities. Contributions to the ozone problem have been far-reaching. Prepared an inventory of greenhouse gases for India.

Memberships: Fellow: INSA 61; Royal Soc. of London 88; TWAS 88 • President: Intl Union of Radio Science; NASI 92–93.

Awards & Distinctions: S S Bhatnagar Prize 68 • INSA Kariamanikkam Srinivasa Krishnan Memorial Lecture Award 75 • Jawaharlal Nehru Fellow 79 • UGC C V Raman Award 80 • FICCI Award 82 • President: NASI 92–93 • Om Prakash Bhasin Award 87 • Padma Bhushan 89 • Meghnad Saha Award 91 • G M Modi Award 92.

Mitra, Asoke Nath

Elected: 1972
Specialization: Theoretical; Nuclear and Quark Physics
Date and Place of Birth: 15 April 1929; Rajshahi, Bangladesh
Parents: Jatindra Nath Mitra and Rama Rani
Spouse and Children: Anjali; two *d* (Bani, Gargi)
Address: 244, Tagore Park, Delhi 110 009, India
Tel. (011) 2744 4731, (011) 2744 6153 (R)
email: ganmitra@nde.vsnl.net.in, anmitra@physics.du.ac.in

Education: Univ. of Delhi: BA 47, MA 49, PhD 52; Cornell Univ., Ithaca: PhD 55.

Career: Delhi Univ., Dept of Phys.: Lecturer 49–52, Central State Scholar 52–55, Reader 60–62, Prof. 63–69, Sr Prof. 69–94; Aligarh Univ.,: Reader 55–60; Indiana Univ., USA: Vis. Prof. 62–63; Intl Centre for Theoretical Phys., Italy: Sr Assoc. 72–77, Hon. Assoc. 78–83; Univ. of Illinois, Chicago: Vis. Prof. 86–87; INSA: Albert Einstein Res. Prof. 89–94.

Scientific Work: Developed an integrated view of the dynamics of 2- and 3-body systems at successively deeper composite levels, from hadronic to sub-hadronic in a unified theoretical style. Bridged the traditional gap between theoretical sophistication and empirical fits to data. Specific contributions include the exact solution of the nuclear 3-body problem with separable potentials; prediction of oscillations in proton's e-m form factor if the quark d.o.f.'s are only spin, flavour and spatial – forerunner of colour d.o.f.; enhanced *s*-wave decays of baryons into heavy meson modes, due to Galilean invariance; integrated Bethe–Salpeter cum Schwinger–Dyson view of qq and qqq dynamics with non-perturbative gluon propagator (including temperature dependence). Recent work includes a new formulation of a direct 3-quark force generated by a 3-gluon vertex in the QCD Lagrangian, and hooking on a qgq bar vertex at the end of each gluon line. This has an interesting support from recent proton spin anomaly data.

Important Publications: **(1)** Quantum field theory (2000) INSA-HBA, New Delhi, pp. 900. **(2)** *India in the world of physics: Then and now* (2008) Pearson-Longmans, New Delhi, pp. 579. **(3)** Direct 3-body force in QCD: Proton spin problem (2007) *Ann. Phys.* **323**, 845–865. **(4)** T-dependent Dyson–Schwinger equation in IR regime of QCD: The critical point (2005) *Euro. Phys. J.* **C39**, 209–218.

Memberships: Fellow: INSA 66; NASI 80; TWAS 93 • New York Acad. of Sci.; American Physics Soc.

Awards & Distinctions: S S Bhatnagar Award 69 • Meghnad Saha Award 75 • S N Bose Medal 86.

Mitra, Samaresh

Elected: 1982
Position: Prof., Raja Ramanna Fellow, IICB, Kolkata
Specialization: Biological Chemistry; Inorganic Biochemistry
Date and Place of Birth: 17 March 1940; Calcutta
Parents: Nagendranath Mitra and Gauribala
Spouse and Children: Bandana; one *s*, one *d*
Address: Indian Institute of Chemical Biology, 4, Raja S C Mullick Road,
Jadavpur, Kolkata 700 032, India
Tel. (033) 2499 5866, (033) 2473 6793 (O), (033) 2418 8209 (R), Mobile: 98312 73257
email: mitrasamaresh@yahoo.com, smitra@tifr.res.in

Education: Univ. of Gorakhpur: BSc 59, MSc 61; Univ. of Kolkata: DPhil 66.

Career: Univ. of Melbourne, Australia, Chem. Dept: Postdoc Res. Fellow 66–70; TIFR, Bombay, Chemical Phys. Group: Vis. Fellow 70–72, Fellow 72–78, Reader 78–84, Assoc. Prof. 84–90, Prof. 90–93, Sr Prof. 93–2003; St John's College, UK: Sr Vis. Res. Fellow; IICB, Kolkata: BRNS Sr Sci., Raja Ramanna Fellow 2003–.

Scientific Work: Pioneered the application of magnetic anisotropy to determine electronic structure of low symmetry metal complexes, and demonstrated the potentialities of this technique in chemistry which solved some of the outstanding puzzling electronic structural problems in metal phthalocyanines and porphyrines and highlighted the usefulness of this technique in determining the dipolar contribution in the NMR chemical shift of paramagnetic complexes. Pioneering contribution on the magnetic studies of the single crystals of metalloporphyrins. Established a close correlation in the properties of metalloporphyrins with those of haeme proteins. NMR studies on haeme in aqueous micellar solution provided the best hitherto model to study the haeme in hydrophobic protein environment. Contributed very significantly to the area of inorganic biochemistry. Studies on the binding of substrates to haeme peroxidases have made a significant impact on molecular recognition and its biochemical significance. Study of the reductive half reaction of xanthine oxidase has led to the discovery of a new intermediate in the physiological function of xanthine. Research work is presently centred around enzyme kinetics, electron transfer reactions and structural functional relationship in both haeme and non-haeme proteins.

Memberships: Fellow: NASI 83; INSA 87.

Awards & Distinctions: S S Bhatnagar Award 83 • INSA S Swaminathan Commemorative Lecture Award 98 • Chem. Res. Soc. India, Silver Medal 2002 • Indian Sci. Congress, D S Kothari Memorial Gold Medal 2006.

Mitra, Sujit Kumar*

Elected: 1990
Specialization: Mathematical Statistics
Date and Place of Birth: 23 January 1932; Calcutta, West Bengal
Parents: Sunil Kumar Mitra and Ashalata
Spouse and Children: Sheila; one *s*, three *d*
Last Address: Indian Statistical Institute, 7, SJS Sansanwal Marg, New Delhi 110 016, India
***Deceased:** 18 March 2004

Education: Calcutta Univ.: MSc 51; Univ. of North Carolina, USA: PhD 56.

Career: ISI, New Delhi: Lecturer 56–58, Reader 58–63, Prof. 74–91; Distinguished Sci. 91–92; Distinguished Sci. Emeritus 92; Indiana Univ., USA, Dept of Maths: Vis. Prof. 71–74; Purdue Univ., USA, Dept of Statistics: Vis. Prof. 81; Univ. of Texas, USA: Vis. Prof. 84.

Scientific Work: Worked on tolerance limits for normal distributions, effect of non-normality on variables sampling plans, unbiased estimation in power series distributions, integration of sample surveys, asymptotic power or frequency chi-square tests, Cornish–Fisher type expansions related to the variance ratio distribution, characterization of the Wishart distribution, density-free treatment of the matrix variate beta distribution, singular linear models, generalized inverse of matrices and matrix operations induced by electrical networks, and matrix partial orders.

Memberships: Fellow: INSA 81; Inst. of Mathematical Statistics.

Mittal, Jai Pal

Elected: 1986
Position: Raja Ramanna Fellow; BARC, Mumbai
Specialization: Radiation Chemistry and Radiation Biology; Photochemistry and Photobiology; Laser Chemistry; Chemical Dynamics
Date and Place of Birth: 21 September 1940; Meerut, Uttar Pradesh
Parents: Daya Prakash Mittal and Krishna
Spouse and Children: Lalitha; two *s* (Arun, Navin)
Address: 11-B, Rohini Co-operative Housing Society, Sector 9-A, Vashi, Navi Mumbai 400 703, India
Tel. (022) 2559 5245, (022) 2559 5246 (O), (022) 2766 4822 (R)
email: mittaljp2003@yahoo.co.in, mittaljp@barc.gov.in

Education: Univ. of Agra: MSc 59; Univ. of Notre Dame, USA: PhD 67; Univ. of California, USA: Postdoc 67–68.

Career: BARC, Bombay: Head, Chemical Dynamics Section 86–89, Radiation Chem. Sec. Head 89–91, Chemistry Group Assoc. Dir 91–93 Chemistry & Isotope Group, Dir 93–2003, DAE Raja Ramanna Fellow 2006–; IIT Bombay: Hon. Distinguished Prof. 2006–.

Scientific Work: Studied transient reactive species in the real-time scales of nano- and pico- and femtoseconds. Seminal work has led to understanding of photo- and radiation biology of thymine and amino acids. Worked on infrared multiphoton reaction dynamics with the help of infrared lasers. Carried out electron and energy transfer studies in the radiation and photochemistry of several substances in gas phase, on the one hand, to matrix isolation studies at 77K, on the other; investigated the dynamics of charge-transfer reactions involving fullerenes.

Important Publications: **(1)** Solution photochemistry of thymine and uracil (1966) *Science* **154**, 1560. **(2)** *Nature* (1968) **220**, 1023. **(3)** *J. Am. Chem. Soc.* (1993) **115**, 11722. **(4)** *Chem. Phys. Lett.* (1981) **78**, 479. **(5)** *J. Phys. Chem.* (1998) **102**, 10158.

Memberships: Fellow: INSA 88; NASI 89; Maharashtra Acad. of Sci. • President: Indian Chemical Soc. 99; NASI, India 2003–04.

Awards & Distinctions: INSA T R Seshadri Commemoration Medal 94 • INSA Golden Jubilee Commemoration Medal 2001 • NASI N R Dhar Medal 2001 • Kurukshetra Goyal Award 2001 • Humboldt Research Award 2002 • UP Govt Vigyan Gaurav Samman 2002 • Padma Shree 2003.

Mittal, Sanjay

Elected: 2007
Position: Prof., Dean, Academic Affairs, IIT Kanpur
Specialization: Unsteady Aerodynamics; Finite Element Analysis; High Performance Computing and Bluff-body Flows
Date and Place of Birth: 7 February 1968; Dehradun, Uttaranchal
Parents: Sadhu Ram Mittal and Rajesh Rani
Spouse and Children: Nalini; one *s*, one *d*
Address: Department of Aerospace Engineering, Indian Institute of Technology, Kanpur 208 016, India
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email: smittal@iitk.ac.in; URL: http://home.iitk.ac.in/~smittal

Education: IIT Kanpur: BTech 88; Univ. of Minnesota, USA: MS 90, PhD 92.

Career: Univ. of Minnesota: Teaching Asst 89–90, Res. Asst 90–91, Res. Assoc. 92–94; IIT Kanpur: Asst Prof. 94–2000, Assoc. Prof. 2000–03, Prof. 2003; Chuo Univ., Japan: Vis. Prof. 2004; Rice Univ., USA: Vis. Assoc. Prof. 2001.

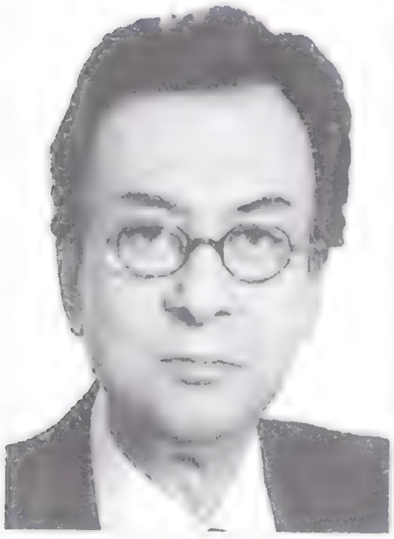
Scientific Work: In the last decade or so, has utilized modern stabilized finite element methods very effectively to analyse and understand fluid flows, including those that involve moving boundaries. Work on vortex induced vibrations is very significant. Has not only been able to understand and explain some of the already known phenomena associated with bluff body flows, but also discovered a few new ones. In the last few years, pointed out the relevance of blockage effects in bluff body flows. Demonstrated that large blockage can lead to qualitatively different behaviour, especially for bodies undergoing free vibrations. Investigated the absolute as well as convective instabilities in a global sense and attempted to determine the Reynolds number for the onset of shear layer instabilities in bluff body flows. Through simulations, proposed a mechanism for the transition of boundary layer from a laminar to turbulent state on a bluff body. In addition to work on fundamental fluid mechanics, made significant contributions to aerodynamics of ram-air parachutes, supersonic wind-tunnels, diffusers, aerodynamic shape optimization and air-intakes.

Important Publications: **(1)** Vortex-induced vibrations of a circular cylinder at low Reynolds numbers (2008) *J. Fluid Mech.* **594**, 463–491. **(2)** Onset of shear layer instability in flow past a cylinder (2008) *Phys. Fluids* **20**, 054102. **(3)** Steady separated flow past a circular cylinder at low Reynolds numbers *(2009) J. Fluid Mech.* **(4)** A stabilized finite element method for global analysis of convective instabilities in nonparallel flow (2007) *Phys. Fluids* **19**, 088105. **(5)** Vortex induced vibrations at subcritical Re (2005) *J. Fluid Mech.* **534**, 185–194.

Memberships: Fellow: INAE 2006.

Awards & Distinctions: INSA Medal, Young Scientist 99 • INAE Young Engineer Award 2000 • A K Bose Memorial Award, INSA 2002 • Swarnajayanti Fellowship, DST 2003 • S S Bhatnagar Prize 2006 • Scopus Young Scientist in Engineering 2007 • Chaired Prof., IIT Kanpur 2008

Mittra, Indraneel



Elected: 1998
Position: Dr Ernest Borges Chair in Translational Res. and Emeritus Prof., Dept of Surgical Oncology, Tata Memorial Centre, Mumbai
Specialization: Cancer Surgery; Cancer Biology; Cancer Prevention
Date and Place of Birth: 28 June 1943; New Delhi
Parents: A P Mittra and Surama
Spouse and Children: Shubhra; two *s*
Address: Department of Surgical Oncology, Tata Memorial Centre, Dr Ernest Borges Road, Parel, Mumbai 400 012, India
Tel. (022) 2417 7000 (O), (011) 2924 1504 (R), Mobile: 97697 69720
email: indraneel.mittra@gmail.com

Education: Univ. of Delhi: MBBS 65; Royal College of Surgeons of England: FRCS 71; Univ. of London: PhD 77.

Career: Breast Cancer Unit, Guy's Hospital: Res. Fellow 71–74; Royal College of Surgeons, England: Res. Fellow 74–75; Guy's Hospital, London: Sr Registrar 75–76; Imperial Cancer Res. Fund, London: Postdoc Fellow 76–78; Bartholomews Hospital: Res. Fellow 78–80; Inst. of Cancer Res., London: Res. Fellow 80–82; Tata Memorial Hospital: Surgeon/Sci. 82–2002; Bhopal Memorial Hospital and Res. Centre: Dir General, Head Dept of Surgical Oncology and Head Dept of Res. 2002–07; Sir Ganga Ram Hospital, New Delhi: Sr Consultant Surgeon, Dept of Surgical Oncology, Convener of Dept of Research 2007–.

Scientific Work: Contributed extensively to clinical, laboratory and public health research in cancer. First to conclusively establish the relationship between thyroid dysfunction with breast cancer. Founder PI of a major randomized trial of early detection of breast and cervical cancer using low cost tech approaches involving 150000 women in the suburbs of Mumbai. Made significant and wide ranging contributions in the field of breast cancer. Credited with having made 2 important discoveries: the phenomenon of an interaction between thyroid hormones and prolactin in mammary eqithelial growth; and the cleaved form of prolactin that is mitogenic to the mammary cells. Studies on the biology of human breast cancer have contributed significantly to our understanding of the complex natural history of this disease. Devised a new statistical method of depicting survival in cancer which has allowed the vexed question of curability of cancer to be answered for the first time. An international leader in epidemiological research in early detection and prevention of cancer in developing countries. An untiring crusader for the cause of scientific research and evidence-based medicine in clinical practice.

Important Publications: **(1)** Mammotrophic effect of prolactin enhanced by throidectomy (1974) *Nature* **248**, 525–526. **(2)** Hypothalamic-pituitary thyroid axis in breast cancer (1974) *Lancet* 885–888. **(3)** Thyroid and other auto-antibodies in British and Japanese women: An epidemiological study of breast cancer (1976) *Br Med J*

257–259. **(4)** Somatomedins and proteolytic bioactivation of prolactin and growth hormone (1984) *Cell* **38**, 347. **(5)** A meta-analysis of reported correlations between prognostic factors in breast cancer: Does axillary lymph node metastasis represent biology or chronology? (1991) *Eur J Cancer* **27**, 1574–1583.

Memberships: Member: Indian Assn of Cancer Research • Indian Soc. of Oncology • Fellow: INSA 99; FRCS (England).

Moghe, Mahadev Atmaram*

Elected: 1934
Specialization: Helminthology; Mammalian Reproduction; Embryology and Cytochemistry of Placenta
Date and Place of Birth: 21 April 1896; Jabalpur, Madhya Pradesh
Parents: Atmaram Moghe
Spouse and Children: Kamala Bai; two *s*, three *d*
Last Address: Canal Road, Ramdaspeth, Nagpur, India
***Deceased:** 12 May 1966

Education: Univ. of Allahabad: MA 19, MSc 21, 23; Univ. of London: PhD 37.

Career: Hislop College, Nagpur: Lecturer 23–26; Nagpur Univ.: Registrar 26–29; College of Sci., Nagpur: Asst Prof. 29–35, Prof. 40–49; Vidarbha Mahavidyalaya, Amravati: Principal 50–51; Univ. of Poona: Registrar 51–53, Prof. of Zoology 55–57; Birla College of Sci., Pilani, Dept of Zoology: Prof. 53–55; NEERI, Nagpur: Sci. 57–66.

Scientific Work: Discovered several species of cestode parasites in vertebrates; studied development of kidney in some teleostean fishes; development of the embryo and placentation and foetal membranes of two megachiropteran bats; studied the testes of several species of bats with special reference to the role of Leydig cells. Piloted a research scheme for the study of incidence of helminth infection in goats and sheep in central provinces and Berar. Established a school of research on embryology and reproduction of mammals at College of Science, Nagpur. Initiated chromosome studies in hemipteran insects at Birla College, Pilani; at NEERI, Nagpur initiated work on water pollution and its biological indicators of it.

Memberships: Fellow: Zoological Soc. of London; INSA 48. • President: Zoology Section of Indian Sc. Congress.

Mohan Kumar, Neithalath

Elected: 1993
Position: Prof., Washington Univ., USA
Specialization: Commutative Algebra; Algebraic Geometry
Date and Place of Birth: 12 May 1951; Palghat, Kerala
Parents: P Vasu Menon and Narayani Amma
Spouse and Children: Manika; one s (Ikshu)
Address: Department of Mathematics, Washington University at St. Louis, One Brookings Drive,Campus
Box 1146, St Louis, MO 63130, USA
Tel. (+1–314) 935 6728 (O), (+1–314) 726 2115 (R)
email: kumar@wustl.edu; URL: http://www.math.wustl.edu/~kumar

Education: Kerala Univ: BSc 70; IIT Kharagpur: MSc 72; Bombay Univ.: PhD 81.

Career: TIFR, Bombay: Vis. Member 72–74, Res. Asst. 74–77, Res. Fellow 77–78, Fellow 78–82, Reader 82–90, Assoc. Prof. 90– 93, Prof. 93–; Univ. of Chicago, USA: L E Dickson Instructor 78–80; Vis Prof. 87–89 Univ. of Geneva, Switzerland: Vis. Prof. 82; Washington Univ. in St. Louis: Prof. 99–.

Scientific Work: Work deals with efficient generations of modules over a ring and these problems are inextricably linked to study of vector bundles. Settled some well-known conjectures in these areas, known as the Eisenbud–Evaus conjecture and Forster's conjecture. Classified certain singular points known as rational double points on rational surfaces which were done algebraically for the first time. Showed that vector bundles over affine 3-folds are completely characterized by their Chern classes. These techniques also influenced in obtaining certain invariants (via Chern classes) helping to settle a question of Suslin, by constructing vector bundles which are topologically trivial but not algebraically trival. Studying deformations of vector bundles on 3-space and showed that certain intuitively obvious facts are not necessarily true.

Important Publications: **(1)** Arithmetically Cohen–Macaulay bundles on hypersurfaces (2007) *Commentari Mathematici Helvetici* **82**, 4. **(2)** Construction of rank two vector bundles on P_4 in positive characteristic (1997) *Inv. Math.* **130**, 277–286. **(3)** Affine-like surfaces (1993) *J. Geometry* **2**, 4, 689–704. **(4)** Stably free modules (1985) *Am. J. Math.* **107**, 1439–1443. **(5)** Algebraic cycles and vector bundles over affine three-folds (1982) *Ann. Math.* **116**, 579–591.

Memberships: Member: Indian Mathematical Soc; Am. Math. Soc.

Awards & Distinctions: INSA Young Scientist Award 82 • IASc Assoc. 84–87 • Birla Award 90 • S S Bhatnagar Award 94.

Mohan Ram, Holenarasipur Yoganarasimham

Elected: 1974
Specialization: Plant Growth; Development and Economic Botany
Date and Place of Birth: 24 September 1930; Mysore, Karnataka
Parents: H Yoganarasimham and Saraswathy
Spouse and Children: Manasi; one *s*, one *d*
Address: No. 194, SFS DDA Flats, Mukherjee Nagar, Delhi 110 009, India
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email: hymohanram@yahoo.com

Education: Mysore Univ.: BSc 50; Agra Univ.: MSc 53; Delhi Univ.: PhD 59.

Career: Univ. of Delhi, Delhi, Dept of Botany: Lecturer 53–58, Reader 61–68, Prof. 68–95, INSA Sr Sci 95–2002, Hon. Prof 2002–; Cornell Univ., USA: Fulbright–Smith–Mundt Fellow 58–60; CNRS, France: UNESCO Sr Fellow 70–71.

Scientific Work: Studied the effect of growth regulators on flower development; demonstrated that flower sex expression in *Cannabis* and castor is regulated by gibberellins and ethylene; established that aquatic insectivore *Utricularia* can utilize inorganic nitrogen; used whole plant cultures to study growth, reproductive development and conservation of aquatic plants notably *Utricularia, Ceratophyllum, Limnophila, Neptunia, Trapa* and the Podostemaceae; demonstrated *in vitro* regeneration of plantlets in legumes; established large-scale *in vitro* propagation of bamboos through somatic embryogenesis and their transplantation in forests; investigated the physiology of flower bud growth and post-harvest storage of chrysanthemums and gladiolus; brought out the reproductive biology of lantana, potato, and *Dalbergia sissoo*; studied the structure of wood, and gum-resin secreting tissues and engaged in the improvement of gum-resin tapping.

Memberships: Fellow: NASI 77; INSA 78; NAAS 91 • President: Intl Soc. of Plant Morphologists.

Awards & Distinctions: J C Bose Award 79 • Om Prakash Bhasin Award 86 • S B Saxena Memorial Award 90.

Mohan Rao, Chintalagiri

Elected: 1999
Position: Director CCMB, Hyderabad
Specialization: Biomolecular Spectroscopy; Molecular Chaperones; Protein Folding in Health & Disease
Date and Place of Birth: 19 January 1954; Huzurabad, Andhra Pradesh
Parents: Ch. Sheshagiri Rao and Tulasi
Spouse and Children: Sailaja; one s
Address: Centre for Cellular & Molecular Biology, Uppal Road, Hyderabad 500 007, India
Tel. (040) 2716 0222, (040) 2719 2543 (O), (040) 2720 3931 (R)
email: mohan@ccmb.res.in; URL: http://www.ccmb.res.in/staff/mohan

Education: Osmania Univ., Hyderabad: BSc 75; Kakatiya Univ., Warangal: MSc 77; Univ. of Hyderabad: PhD 84.

Career: CCMB, Sci. 84–; Dy Dir 96–2009, Dir 2009–; National Eye Inst., USA: Vis. Assoc. 90–92; Sci. Univ. of Tokyo: Vis. Prof. 96.

Scientific Work: Research activity addresses the problem of protein folding in health and disease and the role of molecular chaperones in the process, by taking biophysical, spectroscopic and molecular biological approaches. Has been using these approaches to investigate the problems of biomedical importance such as molecular basis of lens opacity in cataract and the mode of action and localization of drugs and ligands in intact cells. Studies suggest that α-crystallin can function as a molecular chaperone in preventing the protein aggregation. Work has shown that the chaperone-like activity of α-crystallin is temperature dependent and can be enhanced several fold by a structural perturbation. Work opened up a new possibility of enhancing the chaperone-like activity of α-crystallin by small molecules with an aim to prevent or postpone cataract and other complications (brain, heart, etc), where α-crystallins may have a role to play. This may also help prevent inclusion body formation, a major problem in overexpression of engineered genes. Has successfully engineered recombinant chimeric crystallins with significantly enhanced activity for possible therapeutic activity. Current research focuses on the role of small heat shock proteins in cell motility, cell cycle, apoptosis and cancer. Under a collaborative NMTILI program, successfully developed a DNA-based diagnostic chip for ophthalmic infections.

Memberships: Member: Guha Res. Conf. 98 • Fellow: NASI 99; INSA 2000; FAPSc.

Awards & Distinctions: Young Scientist Award, Indian Assn for Radiation Protection 90 • CCRG Travel Award 91 • Sreenivasayya Memorial Award 96 • Rohto Award 96 • S S Bhatnagar Award 99 • Ranbaxy Award for Basic Medical Science 2000.

Mohan, Anand

Elected: 1999
Position: Registrar, Dayalbagh Educational Inst., Agra
Specialization: Metamorphic Petrology; Mineralogy; Thermodynamics; Precambrian Geology
Date and Place of Birth: 29 September 1957; Varanasi, Uttar Pradesh
Parents: Shanti Lal Kayastha and Kusum
Spouse and Children: Roop Rani; one *s* one *d*
Address: Dayalbagh Educational Institute (Deemed University), Dayalbagh, Agra 282 110, India
Tel. (0562) 654 4855 (0), Mobile: 93369 07431
email: anand.abhu@gmail.com, registrar.dei@gmail.com

Education: BHU: BSc 76, MSc 78, PhD 83.

Career: BHU: Res. Sci. 84–86, Lecturer 86–91, Reader 91–99, Prof. 99–2009; Dayalbagh Educational Inst., Agra: Registrar 2009–.

Scientific Work: Has made rigorous pursuance in reviving the state-of the-art-of-petrography which is the foundation of petrology, among the young petrology community nationwide. As a lone crusader of the splendid heritage of robust petrographic tool, recorded spectacular reaction textures in ultrahigh temperature sapphirine-bearing granulites that provides vital clues as to how the deep continental crust of the Earth evolved in response to tectonics in southern India. This frontline area of metamorphic petrology forms the focus of innovative research. Tracing the genetic finger prints via arrested textures in rare Mg–Al granulites, and application of geothermobarometry with novel petrogenetic grids, pioneered in constructing tectonometamorphic history of the southern granulite and Eastern Ghats granulite terrains. The neoproterozoic tectonothermal imprints in southern granulite terrain and comparable petrological evidences which manifested the research has made resounding global impact on the assembly.

Important Publications: **(1)** Milestones in petrology and future perspectives (2003) *Geol. Soc. India, Memoir* **52**, 472. **(2)** Nanogeoscience: Expanding horizons of earth system sciences (2005) *Geol. Soc. of India* **66**, 635–641. **(3)** Crustal trajectory of sapphirine-bearing granulites from Ganguvarpatti, South India: Evidence for an isothermal decompression path (1993) *J. Metamorphic Geol.* UK, **6**, 11, 867–878. **(4)** Geothermobarometry and development of inverted metamorphism in the Darjeeling–Sikkim region of Eastern Himalaya (1989) *J. Metamorphic Geol.* UK **7**, 95–110. **(5)** Reaction textures and P-T-X trajectory in sapphirine-spine bearing granulites from Ganguvarpatti, southern India (1986) *Neues Jarb. Mineral. Abh.*, Germany **154**, 1, 119.

Memberships: Council Member: Geological Soc. of India 95–2004 • Convener & Chmn: 19th IMA Meeting, Japan • Chmn: V Hutton Symposium, Japan • Fellow: NASI 2006 • Founder member: International Committee for the preservation of petrologically significant mineral nomenclature 2008.

Awards & Distinctions: Geol. Mining and Metallurgical Soc. M K Ray Memorial Medal 85 • Leverhulme Commonwealth Visiting Fellowhip 86–87 • IASc Assoc. 88–92 • INSA Young Scientist Award 89 • UGC Career Award 93 • GOI, Ministry of Steel & Mines National Mineral Award 97 • GSI M R Srinivasa Rao Award 98.

Mohanty, Uma Charan

Elected: 1993
Position: Prof., IIT Delhi
Specialization: Numerical Weather Prediction; Monsoon Dynamics; Climate Modelling; Tropical Meteorology; Meso-scale Modelling System
Date and Place of Birth: 29 June 1948; Khorat, Orissa
Parents: Prahallad Mohanty and Basant Kumari
Spouse and Children: Sudha; two *d* (Sushmita, Smita)
Address: Centre for Atmospheric Sciences, Indian Institute of Technology, Hauz Khas,
New Delhi 110 016, India
Tel. (011) 2659 1301, (011) 2659 1314 (O), (011) 2651 5706 (R), Mobile: 98689 57957
email: mohanty@cas.iitd.ernet.in, ucmohanty@gmail.com

Education: Utkal Univ.: BSc Hons 69, MSc 71; Odessa Hydro-Meteorological Inst., Supreme Attestation Commission, USSR: PhD 78.

Career: India Meteorological Dept: 71–74, 79; Odessa Hydro-Meterological Inst., USSR: Indian Res. Fellow 74–79; IIT Delhi: Sr Scientific Offr 79–82, Lecturer 82–85, SSO-I 85–87, PSO 87–92, Jt Adviser, Jt Dir & Head (Res.) at NCMRWF 93–95, Prof. 95–; Prof and Head 98–2001; Univ. of Reading, UK, Dept of Meteorology: Vis. Sci. 80–81; European Centre for Medium Range Weather Forecasts, UK: Vis. Sci. 82–83, 84, 88–89; Natl Centre for Atmospheric Res., USA: Vis. Sci. 85; North Carolina State Univ. (NCSU), USA 95–2004; Purdue Univ., USA 2006; Asian Disaster Preparedness Centre (ADPC), Thailand 2007–08.

Scientific Work: Revealed for the first time the sequence of changes that take place in the dynamic and thermodynamic structure of the air-mass during onset, active and deficient phases of the summer monsoon over India. Semi-prognostic studies and numerical experimentation with global spectral models demonstrate role of cumulus convection and other physical processes in simulation/prediction of the summer monsoon circulation. Developed an appropriate limited area numerical model to predict local weather systems, monsoon depressions and tropical cyclones. Work has important bearing on initialization of meteorological fields for numerical weather prediction in the tropics. Developed deterministic (dynamical and statistical) models for prediction of tropical cyclones in the Bay of Bengal and associated storm surges along the coastal belt of India. Customized meso-scale modelling system and meso-scale data assimilation for simulation of extreme weather events over India. Responsible for establishment of hydro-meteorological hazards early warning system at ADPC, Bangkok for a number of developing countries of Asia and Africa.

Important Publications: **(1)** Certain seasonal characteristic features of oceanic heat budget components over the Indian seas in relation to the summer monsoon activity over India (1996) *Intl. J. Climatol.* **16**, 3, 243–264. **(2)** Prediction of the 1979 summer monsoon onset with modified parameterization schemes (1988) *Mon. Weather. Rev.* **116**, 328–346. **(3)** The impact of diabatic heating on the initialization of divergent circulation in a global forecast model (1986) *J. Meteorol. Soc. Japan* **64**, 805–817. **(4)** Onsets of the Asian summer monsoon 1979–82. (1984) *J. Atmos. Sci.* **41**, 1620–1639. **(5)** A study of heat and moisture budget over the Arabian Sea and their role in the onset and maintenance of summer monsoon (1983) *J. Meteorol. Soc. Japan* **61**, 208–221.

Memberships: Fellow: NASI 97; Indian Meteorological Soc. • Life Member: Indian Meteorological Soc.; Indian Soc. for Mathematical Modelling and Computer Simulation; Indian Sciences Congress Assn; Soc. for Scientific Value and Orissa Vigyan Acad. • Member: American Meteorological Soc.

Awards & Distinctions: M G Deshpande Award 84 • 12th MAUSAM Award 89 • S S Bhatnagar Prize 93 • AR&DB Silver Jubilee Award 96 • Samanta Chandra Sekhar Award 99 • Senior Assoc. of ICTP, Trieste 2002–09 • Sir Gilbert Walker Gold Medal 2009.

Mohanty-Hejmadi, Priyambada

Elected: 1993
Specialization: Developmental Biology; Herpetology
Date and Place of Birth: 18 November 1939; Cuttack, Orissa
Parents: Bhagabat Charan Mohanty and Nisamoni Devi
Spouse and Children: Arun V Hejmadi; one *d*
Address: GM-8, V S S Nagar, Bhubaneswar 751 007, India
Tel. (0674) 258 1418 (R), Mobile: 91780 61410
email: mohantyhejmadi@hotmail.com

Education: Utkal Univ.: BSc Hons 56; Lucknow Univ.: MSc 58; Univ. of Michigan, USA: MS 64, PhD 70.

Career: Utkal Univ.: Lecturer in Zoology 61–69, Reader 75–82, Prof. 82–2001; Dept of Zoology, Programme Coordinator UGC DRS Programme 94–95, 98–2001; Univ. of Michigan, USA: Res. Assoc. 69–70; East Carolina Univ., USA: Asst Prof. 70–72; Univ. of Naples, Italy: Prof. Contratto 87; Hokkaido Univ., Japan: JSPS Fellow 95; Sambalpur Univ.: Vice-Chancellor 95–98.

Scientific Work: Worked on homeotic transformation of tadpole tails into legs after vitamin A treatment is one of the biggest breakthroughs in the field of development and regeneration. Demonstrated that it is possible to override genetic sex and produce males and females by experimental manipulations. In amphibians, has achieved this by treating tadpoles with appropriate hormones. In the endangered olive ridley sea turtle, it has been done by manipulation of incubation temperature. In this temperature-dependent sex differentiation technique, it has been shown that in the sea turtle, females are produced at high temperature and males at low temperature. The TSD technique, has also contributed significantly to the rear and release programme of the estuarine crocodile (*Crocodylus porosus*). When there was shortage of males, by TSD technique it has been possible to raise males by incubating eggs at high temperature.

Important Publications: **(1)** Vitamin A, regeneration and homeotic transformation in anurans (2003) Proc. *Indian Natl Sci. Acad.* **B69**, 5, 673–690. **(2)** Temperature-dependent sex determination in the salt-water crocodile, *Crocodylus porosus* Schneider (1999) *Curr. Sci.* **76**, 5, 695–696. **(3)** Vitamin A mediated homeotic transformation of tail to limbs, limb suppression and abnormal tail regeneration in the Indian jumping frog *Polypedates maculatus* (1994) *Develop. Growth Differ.* **36**, 3, 307–317. **(4)** Limbs generated at site of tail amputation in marbled balloon frog after vitamin A treatment (1992) *Nature* **355**, 352–353. **(5)** Temperature dependent sex determination in the olive ridley turtle (1986) *Prog. Dev. Biol. Part A*, pp. 159–162.

Memberships: Sigma Xi USA; Phi Sigma, USA • Fellow: Zoological Soc. of India; Assn of Aquaculturists • Member: Marine Turtle Specialist Group (MTSG), IUCN • Sectional President: Zoology, Entomology and Fisheries, 80th Indian Sci. Congress • Chmn: Regional Museum of Natural History, Bhubaneswar.

Awards & Distinctions: UGC Prof. Emeritus in Zoology, Utkal Univ. • Pitamber Pant National Environment Fellowship, MoEF • Zoological Congress Gold Medal • Swami Pranavananda Award • Justice Rajkishore Memorial Award • Pranakrushna Parija Award • Central Sangeet Natak Akademi Award.

Mookherjee, Asoke*

Elected: 1990
Specialization: Ore Geology; Geochemistry; Mineral Economics
Date and Place of Birth: 23 May 1931; Gopalpur, West Bengal
Parents: Pyari Mohan Mookherjee and Abhaya Bala
Spouse and Children: Sumitra; one s (Kunal)
Last Address: Department of Geological Sciences, Jadavpur University, Calcutta 700 032; Flat E-2, 178 Regent Estate, Calcutta 700 092, India
***Deceased:** 16 February 2006

Education: Calcutta Univ.: BSc Hons 52, MSc 54; IIT Kharagpur: PhD 63.

Career: Princeton Univ., USA: Ridgefield Foundation Fellow 60; Lehigh Univ., USA: NSF Vis. Sci. 65; Univ. of W. Ontario, Canada: NRC Vis. Sci. 66–67; Univ. of Heidelberg, Germany: Vis. Sci. 86; IIT Kharagpur: Dean, Academic Affairs and Student's Affair, Prof. of Geology 67–91; Jadavpur Univ., Calcutta: INSA Sr. Sci. and Emeritus Sci. 91–2001.

Scientific Work: Application of phase equilibria to ore mineral assemblages; elucidation of the physiochemical nature of ore fluids and their environment; correlation of regional metallogeny with crustal evolutionary history. Contribution to our understanding of the modifying, creative and dispersive roles of metamorphism in ore genesis is internationally acclaimed. Pioneered research in ore geochemistry in India and discovered a mineral, Rayite from Rajpura-Dariba, Rajasthan.

Important Publications: **(1)** *Ore genesis - A holistic approach* (1999) Allied Publ. pp. 657. **(2)** Deformation structures in the Rajpura–Dariba area in Rajasthan and their significance: in *Crustal evolution and orgeny* (1982) Oxford & IBH, pp. 275–291. **(3)** Influence of tectonic settings on the structure and distribution of ore deposits: *Geological evolution of peninsular India* (1984) Hindustan Publ. pp. 150–159. **(4)** Granitoids around the Malangkhand copper deposits: Types and age relationship (1984) *Proc. Indian Acad. Sci. (Earth Plant. Sci.)* **102**, 399–413.

Memberships: Fellow: INSA 81; NASI 95; Geological Soc. of India; Intl Assn on the Genesis of Ore Deposits; West Bengal Acad. of Sci. and Technology.

Awards & Distinctions: GSI Narayanaswamy Award 85 • IIT Silver Jubilee Res. Award 89 • INSA DN Wadia Medal 2004 • Asiatic Soc. NN Chatterjee Medal 64 • GSI S Narayanaswami Award 85 • Govt of India Natl Mineral Award 87–88.

Moudgal, Nuggehalli Raghuveer

Elected: 1975
Specialization: Biochemical Endocrinology; Immunol-endocrinology; Reproductive Biology
Date and Place of Birth: 4 March 1931; Mysore, Karnataka
Parents: N N Moudgal and Vaidehi
Spouse and Children: Prapulla; two *s*, one *d*
Address: 202D, Mantri Pride Apartments, No. 2, I Cross, Mountain Road, Madhavan Park, Jayanagar I Block,
Bangalore 560 011, India
Tel. (080) 4121 3059 (R), Mobile: 98868 32780
email: rmoudgal@yahoo.com

Education: Bombay Univ.: BSc Hons 50; Univ. of Madras: MSc 54, PhD 57.

Career: Univ. of California, USA: Res. Assoc. 58–61; St Mary's Hospital Med. School, UK: Welcome Trust Fellow 61–62; IISc, Bangalore, Dept of Biochem.: Sr Res. Fellow 63–65, Asst Prof. 65–70, Assoc. Prof. 70–73, Prof. 73–91; INSA Sr. Sci. 91–94; JNCASR: Sr. Assoc. 94–98; Harvard Med. School, USA, Lab. of Human Reproduction: Vis. Assoc. Prof. 69–71; UGC: Natl Fellow 75–77; Hormone Res. Lab., Med. Centre, USA: Vis. Prof. 80–81.

Scientific Work: Pioneered the use of immunological techniques in studying the mechanism of gonadotropin action in the whole animal as well as at the cell level. Established the regulatory role of LH in promotion of luteal function of variety of rodents and also primates; and the need and function of FSH and estrogen in regulating follicular maturation in primates and rats. Established a role for follitropin in regulating fertility in the adult male primate. Demonstrated feasibility of using hormone antisera as effective abortifacients in primates. Pioneered development of the first male contraceptive vaccine for human use. Contributed to the study of gonadotropins, hormone-receptor interaction, induction of gonadotropins hormone receptors and their immunobiology.

Memberships: Member: Soc. of Biological Chemists • Fellow: INSA 79.

Awards & Distinctions: Health and Family Planning National Award 70–71 • B C Guha Award 75 • S S Bhatnagar Prize 75 • Sreenivasayya Memorial Award 78 • Sanjay Gandhi Award 86.

Moudgill, K L*

Elected: 1934
Specialization: Chemistry
Last Address: Indian Standards Institution, 19, University Road, Civil Lines, New Delhi 110 008, India
***Deceased**

Education: Univ. of Glasgow: BSc, DSc; Univ. of Cambridge: MA.

Career: Univ. of Travancore, Trivandrum: Ag. Pro. Vice-Chancellor; The Maharajah's College of Sci., Trivandrum, Dept of Chemistry: Prof.; Indian Standards Institution, New Delhi: Dy Dir of Chemicals.

Important Publications: *J. Am. Chem. Soc.* (1921) **43**, 2257.

Mukerjee, Rahul

Elected: 2001
Position: Prof., IIM, Kolkata
Specialization: Design of Experiments; Asymptotic Theory; Survey Sampling
Date and Place of Birth: 9 February 1956; Calcutta, West Bengal
Parents: Pratip Kumar Mukerjee and Anima
Spouse: Chandana
Address: Operations Management, Indian Institute of Management, Joka,
Diamond Harbour Road, Kolkata 700 104, India
Tel. (033) 2467 8300 (O), (033) 2423 9712 (R)
email: rmuk1@hotmail.com

Education: Univ. of Calcutta: BSc 75, MSc 77, PhD 82.

Career: Univ. of Calcutta: Lecturer 80–82; ISI: Lecturer 82–87, Assoc. Prof. 87–89, Prof. 89; IIM: Prof. 89–.

Scientific Work: Research contributions include fundamental and often counterintuitive results in optimal experimental design, including an in-depth study of a Kronecker calculus for factorial arrangements with applications to fractional factorial plans and related combinatorics, work on higher order frequentist and Bayesian asymptotics yielding deep results finer comparison of test statistics and interval estimators, and the Bartlett phenomenon, and a comprehensive theory of probability matching priors; development of highly innovative techniques finding optimal sampling strategies borrowing tools from the optimal experimental design theory; resolution of a long-standing open issue in sequential estimation.

Memberships: Fellow, Inst. of Mathematical Stat., USA; NASI 2003; INSA 2004.

Awards & Distinctions: Indian Science Congress Assn Young Scientists Award 85 • S S Bhatnagar Prize 2000 • National Award in Statistics in Honour of C R Rao 2001.

Mukherjee, Ardhendu Sekhar*

Elected: 1988
Specialization: Genetics; Cytology
Date and Place of Birth: 1 October 1935; Patadanga, West Bengal
Parents: Sivashanker Mukherjee and Nirupama
Spouse and Children: Sati; two *s* (Dibyendu, Subhendu)
Last Address: Genetic Research Unit, Department of Zoology, University of Calcutta,
35 Ballygunge Circular Road, Calcutta 700 019, India
***Deceased:** 15 November 2004

Education: Calcutta Univ.: BSc Hons 55, MSc 57; Univ. of California: PhD 64.

Career: Univ. of Calcutta: Lecturer 65–75, Reader 75–78, Prof. 78–2000; Univ. of California, USA: Vis. Sci. 63–64.

Scientific Work: Contributions in the field of dosage compensation have opened up a new vista of the concept of genetic regulation in eukaryotes. Proposed that the programme of genetic events, both sex determination and dosage compensation, is controlled by multi-gene families. Reiterated this concept in a model published in the 80s. The work on dosage compensation and sex determination carried out by workers abroad in eighties, are the direct explosion of the ideas emanated from his lab, in the 60s. Contributions in the field of DNA replication have also broken the ice of conservative ideas on the regulatory events. The initiation of DNA replication, at least in *Drosophila* polytene system is considered to be mediated by special initiator proteins and that the initiation of replication takes place at specific initiation sites. Prediction on the two aspects of DNA replication is that the RNA primers for initiation and chain growth may be different, and that initiation of replication takes place at specific points which was identified as activated initiation sites as distinct from potential initiation sites.

Important Publications: **(1)** Studies on the effects of the mutant combgap on the legs of *D. melanogaster* (1971) *Genetics* **68**, 269–286. **(2)** Studies on animal chromosome and gene physiology (1974) *Annu. Rev. Zool.* **1**, 1–24. **(3)** Regulation of sex determination and dosage compensation in *Drosophila* operates through interaction of several genetic elements forming temporallly separated cascades (1995) *Proc. Zool. Soc. Calcutta* **47**, 141–159. **(4)** Sex determination and dosage compensation in *Drosophila*, Essential components of the hierarchy (1997) *Indian J. Exp. Biol.* **35**, 203–221.

Memberships: Fellow: INSA 83; Royal Microscopical Soc. London • Member: Sigma Xi, USA; Zoological Soc., Calcutta; All India Cell Biology Soc.; Soc. for Cytology and Genetics.

Awards & Distinctions: J C Bose Award, Hari Om Trust 84.

Mukherjee, Debashis

Elected: 1987
Position: Chmn, Raman Centre for Atomic, Molecular and Optical Sci., IACS, Kolkata
Specialization: Theoretical Chemistry; Theoretical Spectroscopy
Date and Place of Birth: 17 December 1946; Naihati, West Bengal
Parents: Prafulla Mukherjee and Shanti
Spouse and Children: Kabita; one *s*
Address: Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 4971/451 (O), (033) 2412 5890, (033) 2413 7830 (R)
email: pcdm@iacs.res.in, director@iacs.res.in; URL: http://www.iacs.res.in/pcdm.html

Education: Univ. of Calcutta: BSc 65, MSc 67, PhD 73; Saha Inst., Calcutta: Postdoc Res. 73–75.

Career: IIT Bombay: Lecturer 75–77; IACS, Calcutta: Reader and Prof. 78–.

Scientific Work: First to develop and apply a class of many-body methods, called coupled cluster theories, which are acknowledged as versatile theoretical tools in quantum chemistry. Developed time- and temperature-dependent many-body methods.

Memberships: Fellow: INSA 91; NASI 2006; TWAS 2001; Intl Acad. of Quantum Molecular Sci.

Awards & Distinctions: Kunja Behari Basak Award • Asutosh Mukherjee Award • S S Bhatnagar Award 87 • Jagadish Shankar Memorial Award • Silver Medal, CRSI.

Mukherjee, Rabindra Nath

Elected: 1999
Position: Prof., IIT Kanpur
Specialization: Inorganic Chemistry; Bioinorganic Chemistry
Date and Place of Birth: 19 April 1953; Tribeni, West Bengal
Parents: A N Mukherjee and Gita
Spouse and Children: Mita; one *s*, one *d*
Address: Department of Chemistry, Indian Institute of Techonolgy, Kanpur 208 016, India
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email: rnm@iitk.ac.in; URL: http://home.iitk.ac.in/~rnm

Education: Burdwan Univ.: BSc Hons 73, MSc 76; Calcutta Univ.: PhD 83.

Career: IACS, Calcutta: Postdoc Res. Assoc. 83–85; Harvard Univ., USA: Postdoc Res. Assoc. 85–87; IIT Kanpur: Asst Prof. 87–93, Assoc. Prof. 93–95, Prof. 95–.

Scientific Work: Has made significant contributions to synthetic coordination chemistry of transition metal ions [structure, magnetism and reactivity (including redox reactions)], and ligand design with focus on: bioinorganic modelling of the non-haeme diiron protein hemerythrin; reactivity aspects of high-valent (≥ 3) dimanganese complexes of relevance to photosystem II; reactivity aspects of dicopper enzyme tyrosinase; hydrolase activity (nucleophilic reactivity of copper(II)-coordinated hydroxide ion for the transformation of carbon dioxide to carbonate and benzoyl to benzoate and hydrolysis of ethyl acetate; hydrolysis of phosphate ester by nickel(II)-coordinated hydroxide ion; stabilization of high-valent (≥ 3) iron, manganese, and nickel complexes; stabilization of metal-coordinated ligand radical complexes; magneto-structural studies of a large variety of dinuclear (also coordination polymers and discrete polynuclear clusters) ligand-bridged systems; design of new iron(II) spin-equilibria systems; and nucleophilic addition reactions on ruthenium(II)-coordinated benzene. Has also contributed to inorganic crystal engineering with C-H.Cl interactions.

Important Publications: **(1)** Synthesis and properties of diphenoxo-bridged CoII, NiII, CuII, and ZnII complexes of a new tripodal ligand: Generation and properties of MII-coordinated phenoxyl radical species (2008) *Inorg. Chem.* **47**, 4471–4480. **(2)** Modelling tyrosinase activity. Effect of ligand topology on aromatic ring hydroxylation: An overview (2008) *J. Inorg. Biochem.* **102**, 1170–1189. **(3)** CoII and CoIII complexes of thioether-containing hexadentate pyrazine amide ligands. Effect of chelate ring-size on base-induced transformation of cobalt(III)-thioether chelates: C–S bond cleavage and cyclometallation reaction (2008) *Dalton Trans.*, pp. 260–270. **(4)** Phenolate- and acetate-bridged (both mu-1,1 and mu-1,3 mode) face-shared trioctahedral linear NiII3, NiII2*M*II (*M* = Mn, Co) complexes: Ferro- and antiferro-magnetic coupling (2007) *Inorg. Chem.* **46**, 5128–5130. **(5)** Reaction with dioxygen of a Cu(I) complex of 1-benzyl-[3-(2′-pyridyl)]pyrazole triggers ethyl acetate hydrolysis: acetato-/pyrazolato-, dihydroxo- and diacetato-bridged Cu(II) complexes (2006) *Dalton Trans.*, pp. 1611–1621.

Memberships: American Chemical Soc.; Royal Soc. of Chemistry; Chemical Res. Soc. of India; Indian Assn of Chemistry Teachers • Fellow: Royal Soc. of Chemistry; INSA 2008.

Awards & Distinctions: Bronze Medal, Chemical Research Society of India • J C Bose Fellowship.

Mukherjee, Sunil Kumar

Elected: 2005
Position: Sci., ICGEB, New Delhi
Specialization: Molecular Biology; Extra Chromosomal DNA Replication; Viral Pathogenesis & RNAi
Date and Place of Birth: 5 January 1950; Kolkata, West Bengal
Parents: Chandrabandhu Mukherjee and Sudharani
Spouse and Children: Alpana; one *d* (Sayantani)
Address: International Centre for Genetic Engineering & Biotechnology, Aruna Asaf Ali Marg,
New Delhi 110 067, India
Tel. (011) 2674 1175 (O), (011) 2689 5815 (R), Mobile: 98108 87677
email: sunilm@icgeb.res.in

Education: Univ. of Calcutta: BSc 69; Vishwabharti, Santiniketan: MSc 76; Saha Inst. of Nuclear Phys., Calcutta: Post MSc 77; Calcutta Univ.: PhD 83; Duke Univ., USA, Res. Assoc. 90.

Career: CFTRI, Dhanbad: NMR Operator 70–72; Univ. of Calcutta: SRF 76–82; Johns Hopkins Univ. USA: Postdoc Fellow 83–84; Duke Univ., USA: Res. Assoc. 84–90; ICGEB: Sci. 90–.

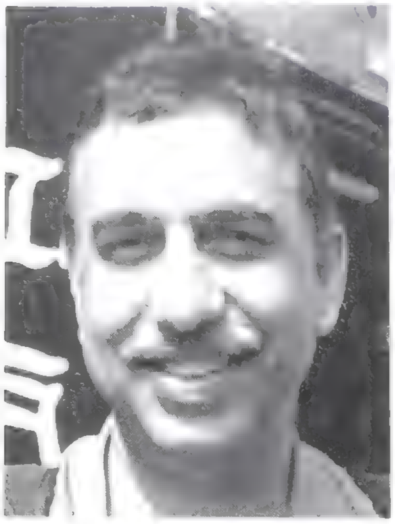
Scientific Work: Worked out the pathways of initiation of rolling circle replication of a geminivirus, mungbean yellow mosaic virus (MYMIV). Identified several host factors responsible for initiation and elongation of replication of MYMIV-DNA. The molecular mechanism of virus encoded RNAi suppressors has been unveiled in the lab. The biotechnological applications of the RNAi suppressors have been revealed.

Important Publications: **(1)** RNA interference: Biology, mechanism and applications (2003) *Micro. Mol. Biol. Rev.* **67**, 657–685. **(2)** The DNA-A component of a plant geminivirus (IMYMV) replicates in budding yeast cells. (2004) *J. Virol.* **78**, 2405–2413. **(3)** The oligomeric Rep protein of mungbean yellow mosaic India virus (MYMIV) is a likely replicative helicase (2006) *Nucleic Acids Res.* **34**, 6362–6377. **(4)** The 32 kDa subunit of replication protein A (RPA) participates in the DNA replication of mung bean yellow mosaic India virus (MYMIV) by interacting with the viral Rep protein (2007) *Nucleic Acids Res.* **35**, 755–770. **(5)** MYMIV replication initiator protein: Roles at the initiation and elongation steps of MYMIV DNA replication (2008) *Virology* **380**, 75–83.

Memberships: Fellow: NASI 2001; INSA 2007.

Awards & Distinctions: Shri Ranjan Memorial Lecture Award 2008.

Mukhi, Sunil



Elected: 2000
Position: Sr Prof., TIFR, Mumbai
Specialization: String Theory; Quantum Gravity; Supersymmetry
Date and Place of Birth: 20 November 1956; Bombay, Maharashtra
Parents: Parsram M Mukhi and Sarla
Address: Department of Theoretical Physics, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400 005, India
Tel. (022) 2278 2422 (O), Mobile: 98672 01156
email: mukhi@tifr.res.in; URL: http://theory.tifr.res.in/~mukhi

Education: Bombay Univ.: BSc 76; State Univ. of New York: PhD 81.

Career: ICTP, Trieste: Postdoc Fellow 81–84; TIFR: Vis. Fellow 84–85, Fellow 85–90, Reader 90–95, Assoc. Prof. 95–98, Prof. 98–2008, Sr Prof. 2008–.

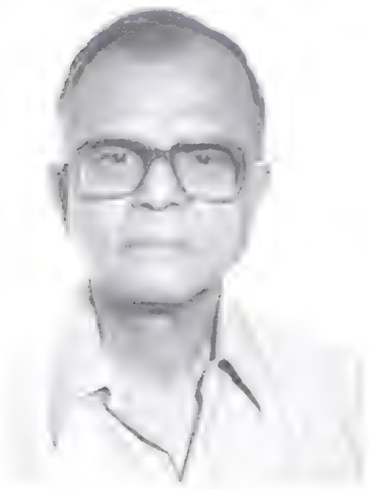
Scientific Work: Conformal invariance of supersymmetric 2d field theories describing string world-sheets, new duality between string theory and *M*-theory, description of *D*-brane decays *via* noncommutative tachyons, novel Higgs mechanism in multiple-membrane field theories.

Important Publications: **(1)** The background field method and the ultraviolet structure of the supersymmetric nonlinear sigma model (1981) *Ann. Phys.* **134**, 85. **(2)** Orbifolds of M theory (1996) *Nucl. Phys.* **B465**, 399. **(3)** BPS nature of three string junctions (1998) *Phys. Lett.* **B423**, 261. **(4)** Noncommutative tachyons (2000) *JHEP* **0006**, 022. **(5)** M2 to D2 (2008) *JHEP* **0805**, 085.

Memberships: Fellow: INSA 2005.

Awards & Distinctions: S S Bhatnagar Award 99 • J C Bose Fellow 2008.

Mukhopadhyay, Dhrubajyoti



Elected: 1988
Position: INSA Hon. Sci., Raman Ctr Appl. and Interdisciplinary Sciences, Kolkata
Specialization: Structural Geology; Precambrian Geology; Metamorphic Petrology
Date and Place of Birth: 19 September 1938; Jalpaiguri, West Bengal
Parents: Apurba Krishna Mukhopadhyay and Aparna
Spouse and Children: Elfriede; two *s* (Ranjan, Sujoy)
Address: G-7, MIG Housing Estate, 25/3 Raja Manindra Road, Kolkata 700 037, India
Tel. (033) 2556 8099 (R), Mobile: 94330 92581
email: dhruba_38@yahoo.co.uk

Education: Calcutta Univ.: BSc Hons 57, MSc 59; Imperial College, London; DIC 64; London Univ.: PhD 64.

Career: Presidency College, Calcutta: Asst Prof. of Geology 64–81; Indian School of Mines, Dhanbad, Dept of Geology: Prof. 81–90, Head 86–90; Univ. of Calcutta, Dept of Geology: Prof. 90–2003, Head 92–94; INSA Sr Sci 2004–2009; Raman Ctr for Appl. of Interdisciplinary Sciences, Kolkata: Hon. Sci. 2009–.

Scientific Work: Significant contributions to structural geology on problems concerning the mechanism of fold formation, methods of strain measurements in deformed rocks and geometrical patterns in superposed deformation. Came up with new ideas on the structural pattern and stratigraphic relations in the precambrian rocks of Singhbhum, Karnataka and Rajasthan in the Indian shield.

Important Publications: **(1)** Eyed folds in Precambrian marbles from southeastern Rajasthan, India (1979) *Bull. Geol. Soc. Am.* **90**, 397–404. **(2)** Structural geometry of the Dharwar rocks near Chitradurga (1985) *J. Geol. Soc. Ind.* **26**, 547–566. **(3)** Structural pattern in the Dharwar craton (1986) *J. Geol.* **94**, 167–186. **(4)** Deformed lineation in ductile shear zones: A case study from the proterozoic fold belt of Singhbhum, eastern India (1997) *Evolution of Geological Structures in micro to macro scales,* Chapman Hall, London, 219–236. **(5)** Pressure-temperature-deformation history in a part of the mesoproterozoic fold belt in North Singhbhum, Eastern India (2006) *J. Asian Earth Sci.* **26**, 555–574.

Memberships: Fellow: INSA 87; NASI 93; GSI; Geological Mining and Metallurgical Soc. of India.

Awards and Distinctions: GSI, India Mysore Geologists Assn Gold Medal • Mining, Geological, Metallurgical Institute of India, J Coggin Brown Gold Medal • Govt of India, National Mineral Award • INSA K Naha Medal • Asiatic Soc., GSI Sesquicentennial Medal • Kamal Kumari Foundation Award for Excellence in Sci. & Technol.

Mukunda, Hanasoge Suryanarayana Avadhany

Elected: 1984
Position: Prof., Adviser, ABETS, IISc, Bangalore
Specialization: Combustion Aerodynamics; Fluid Mechanics; Rocket Propulsion; Energy from Bioresidues
Date and Place of Birth: 20 May 1943; K R Nagar, Mysore, Karnataka
Parents: Suryanarayana Avadhany and Vishalakshamma
Spouse and Children: Indira; one *s*, one *d*
Address: ABETS, CGP Laboratory, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0536, (080) 2293 2338 (O), (080) 2323 5014 (R)
email: hsm.cgpl@gmail.com

Education: Mysore Univ.: BE 63; IISc: ME 65, PhD 70.

Career: IISc, Bangalore, Dept of Aerospace Engg: Lecturer 69–74, Asst Prof. 74–79, Assoc. Prof. 79–84, Prof. 84–2006, Adviser ABETS 2006–.

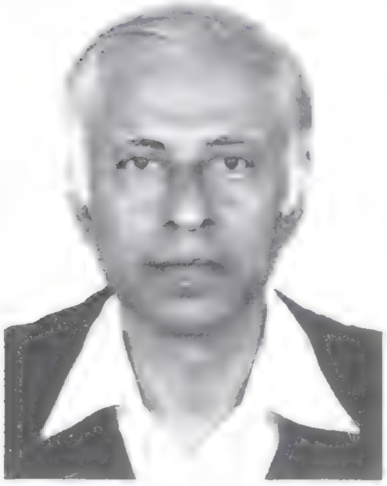
Scientific Work: Research into combustion aerodynamics and technology development of airworthy combustion devices and biomass-based efficient thermal and electricity generation devices. Combustion theory with variable thermodynamic and transport properties is shown to change the dependence of mass consumption/ regression rate even qualitatively in liquid droplets, boundary layer, and free convective combustion geometries. Code has been developed to calculate the flame stucture of propagating premixed and combustible gases including flammability limits. Computational studies on two-dimensional sandwich propellant configuration have been used to elucidate the gas phase combustion behaviour and provide new insights in a field dominated by simple mechanistic models for the last two decades. Basic R&D development on bioresources energy systems has resulted in prediction procedures for conversion of wood char spheres with oxygen (nitrogen), carbon dioxide and water vapour. Technology of woody biomass gasifiers for electricity generation was developed over a range of powers from 3.7–100 kW into a world class technology. Combustion devices based on ayurvedic industrial and similar residues for use in process work have also been developed.

Important Publications: Has over a hundred publications, including those in journals, international symposia and consultancy reports.

Memberships: Fellow: INAE 94 • Aeronautical Soc. of India 93.

Awards & Distinctions: Om Prakash Bhasin Award for contributions to Sci. and Tech. in Energy 94 • Alumni Award, Indian Institute of Science for excellence in Research Engineering 94 • DRDO Academic Excellence Award 2002.

Mukunda, Narasimhaiengar



Elected: 1975
Specialization: Theoretical Particle Physics; Mathematical Physics; Mechanics and Theoretical Optics
Date and Place of Birth: 25 January 1939; New Delhi
Parents: N N Iengar and Shallamma
Spouse and Children: Usha; one *s*, two *d* (Keshav, Kamala, Keerthi)
Address: 103, 6th Main Road, Malleswaram, Bangalore 560 003, India
Tel. (080) 2360 1463 (O), (080) 2334 8657 (R)
email: nmukunda@cts.iisc.ernet.in, nmukunda@gmail.com

Education: Delhi Univ.: BSc Hons 58; Univ. of Rochester, USA: PhD 64; Princeton Univ. & Syracuse Univ., USA: Postdoc Res. 64–67.

Career: TIFR, Bombay: Fellow 67–69, Reader 69–72; IISc, Bangalore, Centre for Theoretical Studies: Prof. 72–2001.

Scientific Work: Contributed to representation theory of Lorentz, Poincaré and other non-compact groups; Majorana and other relativistic wave equations; dynamics and symmetry of constrained systems; coherent states and correlation functions in quantum optics; Fourier optics and theory of optical systems for the Maxwell field; classical dynamical formalism; Hamiltonian theories of interacting relativistic particles; use of fibre bundles and differential geometric methods in mechanics and in modern monopole theory; and theories of relativistic particles with internal structure. Also worked on geometric phases in quantum mechanics and optics, group theoretical and phase space methods in statistical optics, uses of the real symplectic groups for optical and quantum mechanical problems in analysis of non-classical radiation states, and general beam propagation problems; Wigner distribution in quantum mechanics.

Important Publications: **(1)** Unitary representations of the Lorentz groups: Reduction of the supplementary series under a noncompact subgroup (1968) *J. Math. Phys.* **9**, 417–431. **(2)** Completeness of the solutions of the Majorana wave equations (1969) *Phys. Rev.* **183**, 1486–1495. **(3)** Symmetries and constraints in generalized Hamiltonian dynamics (1976) *Ann. Phys.* (NY) **99**, 408–433. **(4)** Paraxial wave optics and relativistic front description-II: The vector theory (1983) *Phys. Rev.* **A28**, 2933–2942. **(5)** Quantum kinematic approach to the geometric phase-I: General formalism (1993) *Ann. Phys.* (NY) **228**, 205–268.

Memberships: Member: Indian Physics Assn; Indian Assn for General Relativity and Gravitation • Fellow: INSA 80; NASI 90; TWAS 98.

Awards & Distinctions: Eastman Kodak Graduate Award 62 • S S Bhatnagar Award 80 • Meghnad Saha Award 85 • Jawaharlal Nehru Fellow 87–89 • Sir M Vivesvaraya State Senior Scientist Award 2003 • ISCA S N Bose Birth Centenary Medal 2009.

Muniyappa, Kalappa

Elected: 1994
Position: Prof. & Chmn., Dept of Biochemistry, IISc, Bangalore
Specialization: Molecular Genetics; Genetic Recombination; Telomere biology
Date and Place of Birth: 8 September 1952; Chickballapur, Karnataka
Parents: Kalappa and Venkatamma
Spouse and Children: Tara; one *s* (Ananth)
Address: Department of Biochemistry, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0278, 2293 2235 (O), (080) 2360 1242 (R)
email: kmbc@biochem.iisc.ernet.in

Education: Mysore Univ.: BSc 72, MSc 74; IISc, Bangalore: PhD 80.

Career: Smith Kline & French, Bangalore: Res. Chemist 75–76; Univ. of Georgia, USA: Postdoc Assoc. 80–82; Yale Univ., USA: Postdoc Assoc. 82–84, Assoc. Res. Sci. 84–87; IISc, Bangalore: Asst Prof. 87–92, Assoc. Prof. 92– 98; Prof. 99–.

Scientific Work: Research focussed on the mechanism of chromosome synapsis, genetic recombination, telomere biology and genome stability. Made several conceptually important contributions to our understanding of the mechanisms of DNA recognition by structure- and sequence specific DNA-binding proteins, search for homologous sequences, the effects of higher-order chromatin structure on DNA pairing and strand exchange, and the resolution of the Holliday junction intermediates. Uncovered critical roles for DNA damage response proteins in telomere length maintenance, senescence and cell cycle checkpoint control. Attempts to elucidate the mechanistic aspects of genetic recombination and lateral gene transfer in TB bacilli has led to the identification of a unique mechanism of strand exchange promoted by RecA and insights into negative regulation of homologous recombination.

Important Publications: **(1)** Selective binding of meiosis-specific yeast Hop1 to the Holliday junctions distorts the DNA structure and its implications for junction migration and resolution (2006) *J. Mol. Biol.* **364**, 599–611. **(2)**RecX protein abrogates ATP hydrolysis and strand exchange promoted by RecA; insights into negative regulation og homologous recombination (2002) *Proc. Natl. Acad. Sci.* USA **99**, 12091–12096. **(3)** The RecA intein of *mycobacterium tuberculosis* promotes cleavage of ectopic DNA sites: Implications for the dispersal of inteins in natural populations. (2002) *J. Biol. Chem.* **277**, 40352–40361. **(4)** Alteration of telomeric sequences and cell senescence caused by mutations in RAD50 of *Saccharomyces cerevisiae* (1997) *Genes Cells* **2**, 443–455. **(5)** Use of structure-directed DNA ligands to probe the binding of RecA protein to narrow and wide grooves of DNA and on its ability to promote homologous pairing (1992) *J. Biol. Chem.* **267**, 24824–24832. **(6)** Nucleosomes on linear duplex DNA allow homologous pairing but prevent strand exchange promoted by RecA protein (1991) *Proc. Natl. Acad. Sci.* USA **88**, 1344–1348.

Memberships: Fellow: NASI 98, INSA 2000; Guha Research Conference • Founding member: Karnataka State Acad. for Sci. & Technology.

Awards & Distinctions: Hanumantha Rao Memorial Medal • Rockefeller Foundation Fellowship • American Cancer Soc. Intl Fellowship • M. Sreenivasaya Memorial Award • S S Bhatnagar Prize • Yamagiwa International Cancer Fellowship • Prof. Vishwanath Memorial Lecture of INSA • J C Bose National Fellowship • Kempe Gowda Award • IISc Alumni Award for Excellence in Research.

Munjal, Manohar Lal

Elected: 1987
Position: Prof., Convenor, Facility of Research in Technical Acoustics, IISc, Bangalore
Specialization: Technical Acoustics; Noise and Vibration Control and Mufflers and Silencers
Date and Place of Birth: 4 April 1945; Hasu Balel, West Punjab
Parents: P D Munjal and Ram Ditti
Spouse: Bhuvnesh, one *d* (Divya)
Address: Facility of Research in Technical Acoustics, Department of Mechanical Engineering,
Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2303 (O), (080) 2360 0326 (R)
email: munjal@mecheng.iisc.ernet.in; URL: http://mecheng.iisc.ernet.in/~frita

Education: Punjab Engg College: BSc 66; IISc: ME 68, PhD 71.

Career: IISc, Bangalore: Lecturer 68–73, Asst Prof. 73–81, Assoc. Prof., Prof. 81–; Univ. of Calgary, Canada, Dept of Mechanical Engg: Vis. Prof. 86–87; Ford Motor Co., USA: Vis. Prof. 94–95.

Scientific Work: Developed analytical or numerical methods for analysis of linear dynamical filters, making use of the transfer matrix approach. These methods have been applied successfully to the analysis and design of reactive and dissipative mufflers (silencers). Acoustic analysis of active noise control system in a duct has led to the prediction of the transfer function of the controller, a clear understanding of its physics, and efficient design of speakers. Set up facility for research in technical acoustics.

Memberships: Member: European Acad. of Sci. • Distinguished Intl. Member: USA Inst. of Noise Centrol Engineering • Fellow: INSA 87; NASI 90; INAE 87; Acoustical Soc. of India; International Institute of Acoustics and Vibration.

Awards & Distinctions: C V Raman Award 80–81 • 1983 Nelson Acoustical Paper Award • INSA Medal for Young Scientists 75 • S S Bhatnagar Award 86 • American Biographical Institute Distinguished Leadership Award 89 • Rustom Choksi Award 95 • Chmn Natl Committee for Noise Pollution Central 98– • S Bhagwantam Award 2005–06 • INSA C P Chatterjee Memorial Lecture Award 2000 • President: Acoustical Soc. of India 99–2000.

Muralidhar, Kambadur

Elected: 1998
Position: Prof., Univ. of Delhi
Specialization: Biochemistry; Endocrinology; Reproductive Biology
Date and Place of Birth: 25 December 1948; Coimbatore, Tamil Nadu
Parents: Kambadur Gundu Rao and Yeshoda Bai
Spouse and Children: K Nirmala; one s (Ananthamurthy)
Address: Department of Zoology, University of Delhi, Delhi 110 007, India
Tel. (011) 2766 7524, (011) 2766 7443 (O), (011) 2766 6186 (R), Mobile: 98109 27705
email: kambadur@hotmail.com

Education: Osmania Univ., Hyderabad: BSc 67, MSc 69; IISc, Bangalore: PhD 75.

Career: IISc, Bangalore: JRF 70–73, SRF 73–75, Asst Res. Offr 75–76, Res. Offr 76–77; Univ. of Hyderabad: Lecturer 77–83; Univ. of Delhi: Reader 83–88, Prof. 88–; Anderson Cancer Center, USA: DBT Assoc. 89; Vis. Sci. 90; Penn-State Univ., USA: Vis. Prof. 2007.

Scientific Work: An established investigator in reproductive biochemical endocrinology. Achieved self-sufficiency in reagents for buffalo endocrine research. Discovered an unusual post-translational modification in the form of tyrosine sulphation in sheep and buffalo prolactin. Purified and characterised all these protein hormones of the pituitary in water buffaloes. Laboratory has extensively investigated the structural microheterogeneity and its physiological significance in protein hormones. A proteolytically derived peptide from prolactin was discovered to be an excellent angiostatic agent. Homologous and sensitive immunoassays have been established for all these hormones in the laboratory.

Important Publications: **(1)** Current status of antifertility vaccines, in Immunological aspects of infertility and fertility regulation (1980) Elsevier, North- Holland, pp. 25-257. **(2)** Presence of tyrosine-o-sulfate in sheep prolactin (1988) *FEBS Lett.* **242**, 139-143. **(3)** Physico-chemical and immunological characterization of buffalo lutropin, (1990) *J. Protein Chem. (USA)* **9**, 727-733. **(4)** Heterogeneity in buffalo pituitary prolactin (1997) *Mol. Cell. Biochem.* **173**, 1-5. **(5)** Thioredoxin reductase-1 negatively regulates HIV-1 transactivating protein Tat-dependent transcription in human macrophages (2008) *J. Biol. Chem.* **28**, 283 (48): 33183-90, Epub 2008 Oct. 3.

Memberships: Fellow: INSA 95; NASI 95.

Awards & Distinctions: K V Gori Memorial Gold Medal 76 • Shadaksharaswami Endowment Lecture Award • US Srivatsava Memorial Lecture Award • V Gopalakrishna Rao Memorial Award • Yellapragada Subbarow Memorial Lecture Award.

Murthy, G V L N*

Elected: 1944
Date of Birth: 10 March 1912
Last Address: Tata Iron and Steel Company Limited, Post Burmmines, Jamshedpur, India
***Deceased:** 1943

Education: Univ. of Allahabad: MSc 34, PhD 41; Andhra Univ.: DSc.

Career: Andhra Univ., Waltair: Post-graduate teaching and Res. 34–43; TISCO, Jamshedpur: Head Chemist; ARIC London.

Murthy, Mathur Ramabhadrashastry Narasimha

Elected: 1992
Position: Prof., IISc, Bangalore
Specialization: Macromolecular Crystallography; Virus Structure and Assembly Protein Structure and Function; X-ray Diffraction
Date and Place of Birth: 27 April 1950; Mathur, Karnataka
Parents: Mathur Ramabhadrashastry and Subbalakshmamma
Spouse and Children: H S Savithri; one *s*, one *d* (Kaveri)
Address: Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2458 (O), (080) 2337 2981 (R), Mobile: 99003 13742
email: mrn@mbu.iisc.ernet.in

Education: Bangalore Univ.: BSc Hons 70; IIT Madras: MSc 72; IISc, Bangalore: PhD 77.

Career: IISc, Bangalore: Sr Res. Fellow 82–83, Asst Prof. 83–89, Assoc. Prof. 89–94, Prof. 94–.

Scientific Work: The three-dimensional structures of two isometric ss-RNA plant viruses, sesbania mosaic virus and physalis mottle virus using single crystal X-ray diffraction techniques have been determined. Their mode of assembly is being investigated by structural and biophysical studies on the site specific and deletion mutant capsids formed by expressing the modified viral coat proteins in *E. coli*. The structures determined so far include particles based on *T*=3 as well as *T*=1 icosahedral lattices. The three dimensional structures of three proteins from the malarial parasite, *Plasmodium falciparum*, triosephosphate isomerase (including several site specific mutants), adenylosuccinate synthase and hypoxanthine guanine phosphoribosyl transferase have been determined. These studies could be of significance for molecular structure based design of drugs against the pathogen. The structures of several enzymes involved in propionate metabolism in *Salmonella typhimurium* including methylisocitrate lyase, propionate kinase and threonine deaminase have been determined. These studies have provided valuable information on the functions of enzymes involved in this recently discovered metabolic pathway in *Salmonella typhimurium* and *E. coli*. The structure and function of pyridoxal phosphate dependent enzymes *Bacillus stearothermophilus* serinehydroxymethyl transferase, *Salmonella typhimurium* actetylornithine aminotransferase and diammonia propionate lyase have been studied.

Important Publications: **(1)** Structure of *Sesbania* mosaic virus at 3.0 A resolution (1995) *Structure* **3**, 1021–1030. **(2)** Structure of *Physalis* mottle virus at 3.8 A resolution: Implications for the viral assembly (1999) *J. Mol. Biol.* **289**, 919–934. **(3)** Crystal structure of the serine protease domain of *Sesbania* mosaic virus polyprotein and mutational analysis of residues forming the S1-binding pocket (2006) *Virology* **346**, 440–451. **(4)** *T*=1 capsid structures of *Sesbania* mosaic virus coat protein mutants: Determinants of *T*=3 and *T*=1 capsid assembly (2004) *J. Mol. Biol.* **342**, 987–999. **(5)** Crystal structures of *Salmonella typhimurium* biodegradative threonine deaminase (TdcB) and its complex with CMP provide insights into ligand-induced oligomerization and enzyme activation (2007) *J. Biol. Chem.* **281**, 39630–39641.

Memberships: Fellow: INSA 97; NASI 2000; TWAS 2004; Indian Biophysical Soc.; Indian Virological Soc.; Indian Crystallographic Assn.

Awards & Distinctions: S S Bhatnagar Award 93 • Rustum Choksi Award • G N Ramachandran Commemoration Award • Astra-Zeneca Distinguished Scientist Award • Hari Om Ashram Trust Awards • Jagdish Chandra Bose Award.

Murthy, Mundur Venkatasubbiah Nagaraja

Elected: 2004
Position: Prof., IMSc, Chennai
Specialization: Particle Physics; Phenomenology; Quantum Statistics; Semiclassical Methods
Date and Place of Birth: 9 July 1953; Bangalore, Karnataka
Parents: M S Venkatasubbiah and M V Bhagirathi
Spouse and Children: Hema Arunachalam; one *d* (Kaveri)
Address: The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai 600 113, India
Tel. (044) 2254 3326 (O), (044) 2257 0652 (R)
email: murthy@imsc.res.in

Education: Bangalore Univ.: BSc Hons 72; Mysore Univ.: MSc 74, PhD 80.

Career: Univ. of Mysore: JRF 74–77, SRF 77–80, Lecturer 80–81; IISc, Bangalore: Visitor 81; TIFR: Vis. Fellow 81–83; McMaster Univ., Canada: Postdoc Fellow 83–86; Inst. of Math Sci.: Asst Prof. 86–90, Reader 90–95, Assoc. Prof. 95–99, Prof. 99–.

Scientific Work: Formulated deformed quark model and a possible solution of the so-called Roper resonance puzzle. a long standing problem in hadron spectroscopy. Identified the hadronic processes for an unambigious determination of the gluon spin density. Determined the ground state of the three anyon spectrum and a formal classification of the anyonic quantum mechanical system as a pseudo integrable system. Described strongly correlated systems in terms of the ideal quasiparticles obeying exclusion statistics of Haldane-origin of exclusion statistics, statistical mechanics of such systems and a one dimensional paradigm that clarifies many issues. Applied the exclusion statistics formalism to realistic three dimensional systems namely, gas of cold fermionic atoms at unitarity limit with some success. A complete and thorough analysis of solar and supernova neutrino signals in a realistic framework beyond toy models was done. More recently, a proposal to solve the mass hierarchy problem in neutrino physics using iron calorimeter detector was proposed.

Important Publications: **(1)** Deformation of the nucleon and delta in excited states (1985) *Phys. Rev Lett* **54**, 745. **(2)** Spin dependent gluon densities from large P_t photon and dimuon production (1989) *Z. Phys.* **C42**, 493. **(3)** The quantum spectrum of three anyons in an oscillator (1991) *Phys. Rev. Lett.* **67**, 1817. **(4)** Haldane exclusion statistics and second virial coefficient (1994) *Phys. Rev. Lett.* **72**, 3629; Thermodynamics of an one dimensional ideal gas with fractional statistics (1994) *Phys. Rev. Lett.* **73**, 3331. **(5)** A question of hierarchy: matter effects with atmospheric neutrinos and antineutrinos (2005) *Phys. Rev.* **D71**, 013001.

Murti, Polapragada Bhaskara Rama*

Elected: 1945
Specialization: Chemistry and Technology of Sugar; Plant Products
Date and Place of Birth: 11 November 1911; Kaikavolu, East Godavari, Andhra Pradesh
Last Address: 21-33, Pullavari Street, Gandhinagram, Kakinada 533 004, India
***Deceased:** December 1990

Education: Andhra Univ.: BSc 34, BSc Hons 36, MSc Hons 38, DSc 42.

Career: JVD College of Sci. & Technol.: 36–42; Board of Sci. and Industrial Res., Delhi: Res. Chemist 42–44; Govt of Madras: Tinctorial Chemist 44–47; Govt Polytechnics of Andhra & Madras; Principal 47–65; Dy Dir Tech. Edn, Andhra 65–67; College of Engg, Kakinada: Prof. of Chem. 67–69; Andhra Univ., Dept of Chem.: UGC Emeritus Prof. 69–73; ICI Labs, Manchester and Tech. College, Huddesfield: Postdoc Res. 46–47.

Scientific Work: Carried out research on plant chemistry, waxes, resins dyestuffs and tri-terpenes. Some of these resulted in manufacture of cellulose paper, viscose and storing enamels.

Memberships: Fellow: Royal Inst of Chemistry; A P Akademy of Sci.

Murty, Bhyravabhotla Radhakrishna*

Elected: 1975
Specialization: Genetics, Biometry and Mutation Breeding
Date and Place of Birth: 4 April 1928; Gudivada, Andhra Pradesh
Parents: B V Lakshminarayana and B Sreeramaratnam
Spouse and Children: Ramalakshmi; two *d* (SreeRama, Usha)
Last Address: 5087, Sector B, Pocket 7, Vasant Kunj, New Delhi 110 030, India
***Deceased:** 16 May 2003

Education: Univ. of Madras: BSc 47; IARI, New Delhi: Assoc. 56; Cornell Univ., USA: PhD 60; Brookhaven National Lab., USA: Nuffield Professorial Fellow 73–74.

Career: Madras Agr. Dept: Res. Asst 47–48; Central Tobacco Res. Inst., Rajamundry: Sr Res. Asst 48–58; Rockefeller Foundation: Res. Fellow 58–60; IARI, New Delhi: Biometrical Geneticist 61–68; Nuclear Res. Lab.: Dir 74–91; Millets for Crop Improvement: All India Project Co-ordinator 66–74; Intl Atomic Energy Agency, Austria: UN Expert 79–86; Cornell Univ., USA, Biometric Unit: Vis. Prof. & Consultant 86–88; Nuffield Foundation, Cambridge Univ., UK: Professorial Fellow 73–74; INSA, Biochem. Dn: Sr Sci. and Prof. 88.

Scientific Work: Contributions are in gene conservation, biometry, genetics and radiation genetics using multivariate analysis in assessing divergence, effect of selection, and choice of parents for hybridization and classificatory problems of world genetic collections. Modified the methodology of selection for disease resistance, stress tolerance and quality which was reflected in the release of productive varieties. Work on regulation of recombination, disruptive selection and genetic load are classical contributions in theoretical genetics. Worked on use of Kalman filter in combining data of biological studies.

Important Publications: **(1)** Inheritance of some leaf and flower characters in tobacco (1954) *Indian J. Genet.* **14**, 54–67. **(2)** Factor analysis of diversity in the genus *sorghum* (1967) *Indian J. Genet.* **27,** 123–135. **(3)** Heterosis in some coarse grain cereals (1975) *Breeding methods in crop plants,* Van der Hon. Publ., pp. 59–109. **(4)** Bajra production: Problems and prospects (1976) *Technological aspects of millet production, ICSSR Stud. in Agriculture,* pp. 1–75.

Memberships: Fellow: INSA 73; Royal Statistical Soc. • President: Indian Soc. of Genetics and Plant Breeding.

Awards & Distinctions: S S Bhatnagar Award 73 • NAAS K Ramiah Award 2003.

Murty, Budharaju Srinivasa

Elected 2009
Position: Prof., IIT Madras
Specialization: Non-equilibrium processing; nanocrystalline materials and metallic gases; *in situ* composites
Date and Place of Birth: 13 February 1964; Vijayawada
Parents: B V G Krishna Murthy and B Suseela
Spouse and Children: S Sujata; one *s*, two *d* (Siddharth, Sasank, Suseela)
Address: Department of Metallurgical and Materials Engineering, Indian Institute of Technology,
Chennai 600 036, India
Tel. (044) 2257 4754 (O), (044) 2257 6754 (R), Mobile: 94440 77006
email: murty@iitm.ac.in; URL: www.mme.iitm.ac.in/murty

Education: Board Tech. Edu.: DMetE 83; Univ. of Nagpur: BE 86; IISc Bangalore: ME 88, PhD 92.

Career: IIT Kharagpur: Vis. Lecturer 92–95, Asst Prof. 95–99, Assoc Prof. 99–2003, Prof. 2003–04, Vice Chmn GATE 2001–02; NRIM, Tsukuba, Japan: STA Fellow 99–2001; IFCAM, IMR Sendai, Japan and HMI, Berlin, Germany: Vis. Prof. 2005–06; IIT Madras: Prof. 2004–.

Scientific Work: Has pioneered the field of non-equilibrium processing by mechanical alloying in India since 1988 both in developing advanced materials and to their fundamental understanding through thermodynamic modelling. A few examples are the nanoferroelectrics with exceptionally high dielectric constant, Al-based nanocomposites with exceptionally high hardness of 13 GPa, nano W with excellent sinterability at 1500°C, etc. His group has also developed the technology for efficient grain refiners for Al alloys and successfully transferred it to the industry. Work has led to a technology for the development of Al-based *in situ* composites and to stabilize metal foams by ultrafine particles.

Important Publications: **(1)** Novel materials synthesis via mechanical alloying (1998) *Int. Mater. Rev.* **43**, 101–141. **(2)** Direct evidence for oxygen stabilization of icosahedral phase during crystallization of $Zr_{65}Cu_{27.5}Al_{7.5}$ metallic glass (2000) *Appl. Phys. Lett.* **76**, 55–57. **(3)** Grain refinement of Al and its alloys (2002) *Int. Mater. Rev.* **18**, 2–29. **(4)** Mechanism of mechanical alloying in Ni–Al and Cu–Zn systems (1996) *Mater. Sci. Eng.* **A214**, 146–152. **(5)** Mechanical and electrical properties of Cu–Ta nanocomposites prepared by high energy ball milling (2007) *Acta Mater.* **55**, 4439–4445.

Memberships: Life Member: Indian Institute of Metals; Materials Res. Soc. of India; Indian Science Congress Assn; Magnetics Soc. of India; Powder Metallurgy Assn of India • Member: American Soc. of Metals; Japan Institute of Metals • Fellow: INAE 2007; NASI.

Awards & Distinction: ISCA Young Scientist Award 92 • Young Metallurgist Award 94 • INSA Young Scientist Award 95 • INAE Young Engineer Award 97 • MRSI Medal 2004 • S S Bhatnagar Award 2007• ISCA Platinum Jubilee Award • Metallurgist of the Year Award, Ministry of Steel and Mines •

Murty, Sripada Venkata Satyasuryanarayana

Elected: 2002
Position: Prof. Coordinator, PLANEX, PRL, Ahmedabad
Specialization: Early Solar System and Pre-Solar Processes; Cosmochemistry of Nitrogen and Noble Gases and Mass Spectrometry; Planetary Exploration
Date and Place of Birth: 10 October 1952; Rajahmundry, Andhra Pradesh
Parents: S V Ramachandrudu and S Annapurna
Spouse and Children: V S Parvathy; one *d* (Aparna)
Address: Planetary and Geosciences Division, Physical Research Laboratory, Ahmedabad 380 009, India
Tel. (079) 2631 4358 (O), (079) 2673 1343 (R)
email: murty@prl.res.in

Education: Andhra Univ.: BSc 73, MSc 75; IIT Kanpur: PhD 81.

Career: IIT Kanpur: Sr Res. Asst 81–82; Univ. of California: Postdoc Fellow 82–86; PRL: Postdoc Fellow 86–88, Sci. 88–93, Reader 93–99, Assoc. Prof. 99–2004, Prof. 2004–; Max Planck Inst., Germany: Vis. Sci. 96; Planetary and Geosciences Dn: Chmn 2005–07, Coordinator PLANEX Program 2007–.

Scientific Work: Developed a novel mass spectrometric approach for precise and simultaneous measurement of nitrogen and noble gas isotopes, for the first time in the country and used it along with students, to address a number of important scientific problems on the evolution of Earth, Moon and Mars, as well as early solar system objects. Several significant results obtained include: identification of the atmospheric and mantle components of Earth and Mars; indegenous lunar nitrogen isotopic composition; precise measurement of the isotopic composition of nitrogen, for the first time, in phase Q, the main noble gas carrier in primitive meteorites; evidence for live ^{36}Cl (half life = 0.3 million years) in the early solar system; demonstration of a new thermo-chronometer (U, Th–^{21}Ne), for terrestrial samples; currently involved in the planning of the planetary exploration missions of ISRO.

Important Publications: **(1)** Isotopic composition of nitrogen in phase-Q (1996) *Earth Planet. Sci. Lett* **141**, 307–313. **(2)** Nitrogen and heavy noble gases in ALH84001: Signatures of ancient martian atmosphere (1997) *Geochim. Cosmochim. Acta* **61**, 5417–5428. **(3)** Origin of air-like noble gases in oceanic basalts (2000) *Geophys. Res. Lett.* **27**, 1583–1586. **(4)** Nitrogen components in ureilites (2003) *Geochim. Cosmochim. Acta* **67**, 2213–2237. **(5)** Trapped nitrogen in individual chondrules – nature of chondrule precursors and clues to formation mechanisms (2008) *J. Geophys. Res.* **14**, E01008.

Memberships: Member: Meteoritical Soc. • Life member: Indian Soc. for Mass Spectrometry • Life Member: Indian Physics Assn.

Awards & Distinctions: Hari Om Ashram Prerit Dr Vikram Sarabhai Res. Award 97 • Eminent Mass Specrometrist Award, Indian Soc. for Mass Spectrometry.

Murty, Thutupalli Gopala Krishna

Elected: 2002
Position: Adviser, Dept of Space, Bangalore
Specialization: Optical Engineering; Thin Film Technology; Electro-Optical Instrumentation; Atmospheric Science Technologies
Date and Place of Birth: 11 February 1944; Angalakuduru, Andhra Pradesh
Parents: T Hanumanthiah and Mangamma
Spouse and Children: Sarada; one *s* (Shashi)
Address: Department of Space, ISRO HQ, New BEL Road, Bangalore 560 231, India
Tel. (080) 2341 5408, (080) 2217 2274 (O), (080) 6590 2325 (R), Mobile: 99011 55660
email: gkmtpalli@hotmail.com, murty.tgk@gmail.com

Education: Andhra Univ.: BSc 63, MSc 67; Univ. of Adelaide: PhD 76.

Career: Vikram Sarabhai Space Centre, Thiruvananthapuram: Section Head 69–72; ISAC/ISRO: Thin Films Systems and Devices 77–93, Group Dir 87–92; LEOS/ISRO: Dy Dir 92–.

Scientific Work: Architect of space optics for indian space programme of all Indian remote sensing weather satellites including *Chandrayaan 1*; technologies for state of the-art weather surface observatory system with automatic weather stations GPS sondes, doppler radars, lidars, etc. established; ushering India into a new domain in weather and climate technological capabilities.

Important Publications: Technologies for atmospheric sciences and applications published by ISRO and number of publications in *Applied Optics*, USA.

Awards & Distinctions: NRDC Award • WISITEX Award • IETE Gold Medal • ASI Award • ISRO Performance Excellence Award.

Murty, Yerramilli Sreerama*

Elected: 1979
Specialization: Morphology; Taxonomy; General Biology
Date and Place of Birth: 15 May 1925; Udumudi, East Godavari, Andhra Pradesh
Parents: Venkatachalam and Sesha Kameshwari
Spouse and Children: Pushpavalli; three *s*, four *d*
Last Address: Department of Botany, Meerut University, Meerut 250 005, India
***Deceased:** 21 February 1988

Education: Andhra Univ.: BSc 45; BHU, Varanasi: MSc 47; Agra Univ.: PhD 56.

Career: BHU, Dept of Botany: Asst Prof. 47–48; Meerut College, Dept of Botany: Lecturer 48–67, Reader 67–69; Univ. of Chicago, USA: Res. Assoc. 61–62; Meerut Univ., Dept of Botany: Reader 69–72, Prof. and Head 72–85.

Scientific Work: Made distinct contributions to the morphology of a number of angiosperm families. Work on the floral anatomy of the Piperales and of the Triticales are worthy of special mention. Studied local flora in great detail, published some studies and built a good herbarium at Meerut College and later at Meerut University. Did some work on tissue culture and fungal culture and carried on some joint work on rhododendrons. Made valuable contribution to the establishment of School of Plant Morphology in Meerut College.

Memberships: Fellow: Indian Botanical Soc.; Palynological Soc.; INSA; NASI.

Murugavel, Ramaswamy

Elected: 2009
Position: Prof., IIT Mumbai
Specialization: Inorganic and Organometallic Chemistry
Date and Place of Birth: 30 July 1964; Alagramam, Tamil Nadu
Parents: Ramaswamy R and Sivakami
Spouse and Children: Mrinalini G Walawalkar; one *d* (Disha)
Address: Department of Chemistry, Indian Institute of Technology, Powai, Mumbai 400 076, India
Tel. (022)25767163 (O), (022)25768163 (R), Mobile: 98208 03249
email: rmv@chem.iitb.ac.in; URL: www.chem.iitb.ac.in/~rmv

Education: Univ. of Madras: BSc 84, MSc 87; IISc, Bangalore: PhD 93.

Career: IISc: Res. Assoc. 93–94; Univ. of Goettingen: Alexander von Humboldt Fellow 94–96, Res. Sci. 94–97; IIT Bombay: Asst Prof. 97–2001, Assoc. Prof. 2001–05, Prof. 2005–.

Scientific Work: Has contributed to several important aspects of main group inorganic chemistry such a synthesis of soluble models for silicate and phosphate materials, understanding the coordination chemistry of s-block divalent ions, and structure and bonding in main group. Recent achievements include the synthesis of only soluble silicophosphonate in the literature that bears free hydroxyl groups, development suitable thermally unstable molecular precursors for ceramic phosphates, and generation of functional secondary building units of zeolites.

Important Publications: **(1)** Octameric and decameric aluminophosphates (2006) *Angew. Chem.* Int. Ed. **45**, 7022–7026. **(2)** Hierarchical structures built from a molecular zinc phosphate core (2006) *Angew. Chem.* Int. **45**, 5536–5540. **(3)** Seeking tetrameric transition metal phosphonate with a D4R core and organising it into a 3-D supramolecular assembly (2007) *Chem. Commun.* 1257–1259. **(4)** A double helix is the repeating unit in a luminescent calcium 5-aminoisophthalate supramolecular edifice with water-filled hexagonal channels (2007) *Inorg. Chem.* **46**, 6828–6830. **(5)** Water in organoaluminum chemistry: Formation of three-in-one alumino phosphate clusters that incorporate bohemite repeating units (2008) *Chem. Euro. J.* **14**, 3869–3873.

Memberships: Fellow: Royal Soc. of Chemistry.

Awards & Distinctions: J C Ghosh Medal 93 • DAE Young Scientist Award 99 • Swarnajayanti Fellowship 2002 • Chemical Res. Soc. of India Medal 2004 • Alexander von Humboldt Fellowship. • DFG Mercator Vis. Prof. 2009.

Muthukkaruppan, Veerappan

Elected: 1990
Position: Prof., Dir Res., Aravind Med. Res. Foundation, Madurai
Specialization: Immunology; Angiogenesis; Ocular Diseases and Ocular Stem Cells
Date and Place of Birth: 15 October 1934; Palavangudi, Tamil Nadu
Parents: M Veerappan
Spouse and Children: Visalakshi; 3 children
Address: Director-Research, Aravind Medical Research Foundation, No. 1, Anna Nagar,
Madurai 625 020, India
Tel. (0452) 435 6100 (O), (0452) 245 6191 (R), Mobile: 94432 79635
email: drvrm2002@yahoo.com, muthu@aravind.org

Education: Annamalai Univ: BSc Hons 57, MA 60, MSc 61; Univ. of Wisconsin, USA: PhD 65.

Career: Annamalai Univ., Dept of Zoology: Lecturer 57–61, 65–70; Univ. of Wisconsin, USA: Res. Teaching Asst 61–65, Vis. Prof. 78–79; Madurai Kamaraj Univ.: Reader in Biology 70–76, Prof. of Immunology 76–78, 79; School of Biological Sciences, Dept of Immunology: Prof. and Head 89–93; Bharathidasan Univ., Trichi: Vice Chancellor 94–97; Univ. of Wisconsin, Vis. Prof. 98–99; Aravind Med. Res. Foundation, Madurai: Dir Res. 99–.

Scientific Work: Studied the development of mouse embryonic eye lens *in vitro*, which demonstrated the continuity of the process of induction for new lens fibre formation. Using the garden lizard as a model, has described the origin and development of T and B lymphocytes, functions of lymphoid organs, phenomenon of anaphylaxis, transplantation immunity, cell collaboration and immunoregulation. Developed a mouse corneal model to study/evaluate angiogenic potential of tumour cells and factors (VEGF, FGF). Presently interested in human corneal epithelial stem cells, with reference to their biology, *ex vivo* expansion and stem cell therapy in patients for recovery of vision. Other interests are uveitis associated with leptospirosis and mechanism and early diagnosis of diabetic retinopathy.

Important Publications: **(1)** High expression of p63 combined with a large *N/C* ratio defines a subset of human limbal epithelial cells (2005) *Invest. Opthalmol. Vis. Sci.* **10**, 3631–6. **(2)** A method to isolate human limbal basal cells enriched for a subset of epithelial cells with a large nucleus/cytoplasmic ratio expressing high levels of p63 (2008) *Micro. Res. Tech.* **71,** 6, 469–76. **(3)** Pro-inflammatory cytokines, angiogenic and anti-angiogenic factors in vitreous of patients with proliferative diabetic retinopathy and Eales disease (2008) *Retina* **28**, 6, 817–824. **(4)** Evidences for endotoxin as a causative factor for leptospiral uveitis in humans (2008) *Invest. Opthalmol. Vis. Sci.* **49**, 12, 5419–24. **(5)** A subset of human limbal epithelial cells with greater nucleus/cytoplasmic ratio expressing high levels of p63 possess slow cycling property (2008) *Cornea* **27**, 10, 1164–70.

Memberships: Member: Assn for Research in Vision and Opthalmology; Intl Soc. for Stem Cell Res.; Stem Cell Voice of India; Indian Immunology Soc. • Fellow: INSA 89.

Awards & Distinctions: Ranbaxy Research Award 89 • Swami Pranavanand Award 91 • National Institute of Immunology Award 92.

Muthuswami, T N*

Elected: 1943
Specialization: Geology
Date of Birth: 20 June 1898
Parent: Naganath Sastri
Spouse and Children: Sitalakshmi; two *s*, one *d*
Last Address: Meena Natha Bhavan, C130, Thirunagar, Madurai 625 006, India
***Deceased:** 10 December 1980

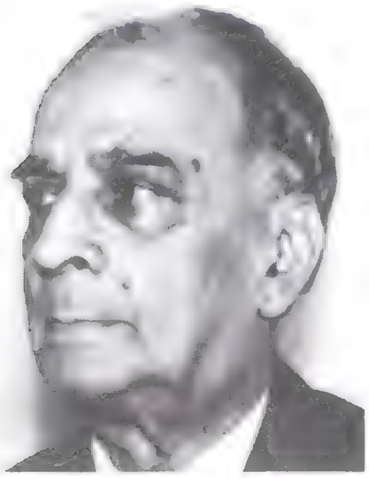
Education: Univ. of Madras: MA 23, LT 25.

Career: Presidency College, Madras: Asst Prof. of Geology 21–24, 40–42; Engg College, Madras; Lecturer in Geology 25–40; Madras Univ.: Hon. Reader in Geology 35–42, Prof. 42–53; Annamalai Univ.: Prof. of Geology 53–65.

Important Publications: **(1)** *Proc. Indian Acad. Sci* (1958) **48**, 9, 28.

Scientific Work: Found much merit in using the methods developed by Paul Niggli, in petrochemical classification of igneous and metamorphic rocks. Translated the original works of Niggli into English and introduced the name in effecting rock classification and interpreting petrogenesis in terms of keto-, meso- and epi-norms as against the simple CIPW norms. Other papers report in the mineralogy and chemistry of several minerals, scapolite in the calc-granulites of Pallavaram, sapphirine in Ganguvar patti rocks and clinohumite in rocks of sausor series in MP.

Nabar, Govind Malhar*



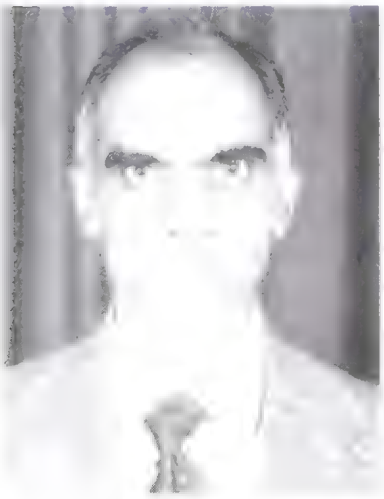
Elected: 1949
Specialization: Textile Chemistry
Date of Birth: 2 July 1904
Parents: Malhar and Savitri
Spouse and Children: Mira; one *s*, two *d*
Last Address: University of Bombay, Matunga, Bombay 400 019, India
***Deceased:** 20 July 1986

Education: Univ. of Bombay: BA 27, BSc 28, MSc 31; Victoria Univ., Manchester: MSc Tech 34, PhD 36.

Career: College of Technology, Victoria Univ., Manchester, UK: Res. Asst 36–39; Shree Niwas Cotton Mills, Mumbai, Chief Chemist 39–41, Univ. of Bombay, Dept of Chemical Tech.: Lecturer, Reader, Prof. 57–69.

Scientific Work: Has worked in investigating textile faults, fastness properties of dyed fabrics, microscopic and microphotographic identification and examination of textile fibres and faults in processing, mechanical and chemical damage, etc. Started work initially on gold and silver compounds diverted to the study of the essential textile materials 'cotton/cellulose'. Trained textile chemists to man textile processing units all over India.

Nadkarni, Mahendra Ganpatrao



Elected: 1989
Position: Emeritus Prof. & Raja Ramanna Fellow, Univ. of Bombay
Specialization: Ergodic Theory; Commutative Harmonic Analysis
Date and Place of Birth: 17 January 1939; Indore, Madhya Pradesh
Parents: Ganpatrao Mangesh Nadkarni and Ramabai
Spouse and Children: Malini; one *d*
Address: Department of Mathematics, University of Bombay, Vidyanagari, Kalina, Mumbai 400 098, India
Tel. (022) 2652 8871 (O), (022) 2444 1093 (R)
email: mgnadkarni@gmail.com

Education: Univ. of Bombay: BSc Hons 58, MSc 60; Brown Univ., USA: PhD 65; Indiana Univ., USA: 60–62.

Career: Washington Univ., USA: Instructor 65–66; Univ. of Minnesota, USA, Dept of Statistics: Asst Prof. 66–68; ISI, Calcutta: Assoc. Prof. 68–72, Prof. 72–80; Univ. of Bombay, Dept of Mathematics: Bal Gangadhar Jambhekar Prof. 80–99, Emeritus Prof., INSA Sr Sci., Raja Ramanna Fellow of DAE 99–.

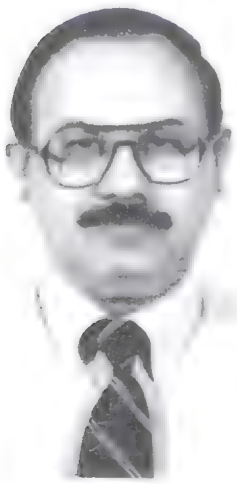
Scientific Work: Research lends a general point of view to the spectral questions in ergodic theory by systematic use of systems of imprimitivity on dual pair of groups; exhibits a measure preserving transformation with Lebesgue component of finite multiplicity; a tight connection between the geometric construction and the spectrum of a rank one transformation, investigated descriptive aspects of parts of ergodic theory, in particular proves descriptive version of

E Hopf's theorem. Studied subsets (and measures on them) of *n*-fold Cartesian products with the property that every function on such a set is a sum of functions on co-ordinate spaces. Has contributed to Martingale theory.

Important Publications: **(1)** *Basic ergodic theory* (1998) Hindustan Book Agency, New Delhi. **(2)** *Spectral theory of dynamical systems* (1998) Hindustan Book Agency, New Delhi. **(3)** On the existence of finite invariant measure (1990) *Proc. Indian Acad. Sci.* (*Math. Sci.*) **100**, 203–220. **(4)** On spectra of unitary groups arising from cocycles, measure preserving transformation (1981) *Ark. Mat.* **19**, 22–237. **(5)** Measure preserving transformation whose specrtum has Lebesgue component of multiplicity two (1984) *Bull. London Math. Soc.* **16**, 403–406.

Memberships: Fellow: INSA 91; Maharashtra Acad. of Sci.

Nadkarni, Vikas Madhusudan



Elected: 1993
Position: MD, Techcellence Consultancy Services Pvt. Ltd, Pune
Specialization: Polymer Science and Engineering, Materials Science; Chemical Engineering
Date and Place of Birth: 6 December 1947; Kolhapur, Maharashtra
Parents: Madhusudan and Nirmala
Spouse and Children: Manjiri; one *s*, one *d*
Address: Techcellence Consultancy Services Pvt. Ltd, 5 Pushkaraj, Pushpak Park, Aundh,
Pune 411 007, India
Tel. (020) 2588 1780 (O), (020) 2588 5146 (R), Mobile: 98220 34477
email: drvmn@vsnl.com; URL: www.vikastech.com

Education: Univ. of Bombay: BE 69; Univ. of Delaware, USA: ME 72, PhD 74.

Career: Univ. of Delware: NSF Res. Fellow 70–74; Vis. Prof. 89–90; 89EI Du Pont De Nemours & Co., USA: Sr Res. Engineer 74–77; Owens Corning Fiberglass Corp., USA: Supervisor 77–80; NCL, Pune: Sci. 81–89 Dy Dir & Head, Chemical Engg Dn 90–93; Performance Polymers Pvt. Ltd: Managing Dir 93–94; Techcellence Consultancy Services Pvt. Ltd: Managing Dir 94–.

Scientific Work: Scientific work in polymers relating to development of novel materials, polymer and fibre processing, and polymer physics specifically involves materials development – polymer blends and alloys, interpenetrating networks and polymer matrix composites; processing – computer simulation of melt spinning of synthetic fibres, structure development in injection moulding of thermoplastics, phase morphology studies in melt compounded polymer blends and alloys, solid state processing of high performance engineering polymers.

Memberships: Fellow: USA Polymer Processing Soc.; New York Acad. of Sci.; USA Soc. of Plastics Engineers; Indian Plastics Inst.; Maharashtra Acad. of Sci.

Awards & Distinctions: Soc. for Polymer Science Santappa Silver Jubilee Award 88.

Nag Chaudhuri, Basanti Dulal*

Elected: 1974
Specialization: Nuclear Physics; Plasma Physics
Date and Place of Birth: 6 September 1917; Barodi, Dhaka
Parent: Umesh Chandra Nag and Leela Manjari
Spouse and Children: Dipali; one s (Dipankar)
Last Address: 43 A, Biren Roy Road (East), Calcutta 700 008, India
***Deceased:** 25 June 2006

Education: BHU, Varanasi: BSc 35; Allahabad Univ.: MS 37; Univ. of California: PhD 40.

Career: Calcutta Univ.: Lecturer 42–46, Reader 46–53, Prof. 53–60; Saha Inst. of Nuclear Phys., Calcutta: Dir 60–67; Jawaharlal Nehru Univ., New Delhi: Vice Chancellor 74–78; Ministry of Defence: Sci. Adviser; Res. and Development, Govt of India: Dir General Defence; 70–74; Cabinet Committee on Sci. and Technol.: Chmn 69–72; Sci. and Technol. Manpower Committee, Govt of India 79–81; Indian Assn for Cultivation of Sc.: President.

Scientific Work: Made noteworthy contributions to nuclear isomerism, artificial radioactivity, Cerenkov phenomenon and low-temperature plasma. Made a galvanometric determination of the ionizing current induced by the alpha emission of thin films of rock minerals deposited on aluminium disks. Samples examined were allanite, thorianite and columbite.

Important Publications: **(1)** On the photo-ionization of molecules (1940) *Proc. Natl Inst. Sci. India* **A6**, 87. **(2)** A short-lived metastable state in titanium-46 (1949) *Nature (London)* **164**, 1001. **(3)** Electrodynamics of moving media and theory of the Cerenkov effect (1956) *Proc. R. Soc. London* **A235**, 544. **(4)** Thermal conductivity measurement technique for semiconductors (1969) *Solid State Technol.* **12**, 43.

Memberships: Member: Sc. Planning Commission 67–70; American Physical Soc.; Indian Geophysical Soc. • Fellow: INSA; NASI; Indian Physical Soc.

Awards & Distinctions: Padma Vibhushan 75 • Andhra Univ., Kanpur Univ.: DSc hc.

Nag, Biswajit*

Elected: 1974
Specialization: Electronics and Computer Sciences
Date and Place of Birth: 20 August 1933; Dhaka, Bangladesh
Last Address: 704, Perana Apartments, Tirandaz, Powai, Opp IIT Main Gate, Bombay 400 076, India
***Deceased:** 6 February 2000

Education: Univ. of Calcutta: BSc Hons, MSc 56, PhD 67.

Career: ISI, Calcutta: Computer Engineer 56–58; Jadavpur Univ., Calcutta: Faculty of Electronics and Telecommunication Engg: Lecturer 58–64, Reader 64–68, Prof. 68–78, 81–84; IETE: Bhabha Memorial Lecturer 79; West Bengal Electronic Industry Development Corporation: Managing Dir 76–78; Govt of India, New Delhi, Electronics Commission: Chmn, Secretary to Dept of Electronics 78–81; IIT Bombay: Dir 84–94.

Scientific Work: Designed and built ISIJU, the first transistor computer to be built in India. Subsequently designed other equipment, including an electronic desk calculator for industrial production. Responsible for the development of Jadavpur University as a centre of excellence in postgraduate education in computer sciences. Was very active in growing electronics technology in the small scale sector in the Calcutta region.

Memberships: Fellow: Computer Soc. of India; Institution of Engineers; IETE.

Awards & Distinctions: S K Mitra Memorial Award.

Nag, Biswaranjan*

Elected: 1984
Specialization: Physics of Semiconductors; Solid State Devices; Electronics
Date and Place of Birth: 1 October 1932; Comilla, Bangladesh
Parents: Satyaranjan and Sailabala
Spouse and Children: Mridula; one *s*, one *d* (Mriduchanda, Mridula)
Last Address: Department of Radio Physics and Electronics, Calcutta University, Sisir Mitra Bhavan, 92 A P C Road, Calcutta 700 009, India
***Deceased:** 6 April 2004

Education: Presidency College: BSc 51; Calcutta Univ.: MSc 54, PhD 60, DSc 72.

Career: ISI, Kolkata: Engineer 54–56; Univ. of Calcutta: Lecturer 56–64, Reader 64–68, Prof. of Radio Phys. and Electronics 68–92; INSA Sr Sci. 92–2004; Wisconsin Univ., USA: Postdoc Res. 60; Bangor, N Wales: Commonwealth Vis. Prof. 71–72.

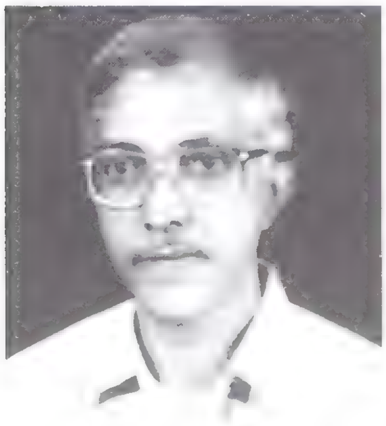
Scientific Work: Developed microwave methods for characterizing semiconductors; made original contributions to the theory of electron transport in elemental and compound semiconductors under various ambient conditions; and developed the theory of energy band structure and electron scattering in superlattices and quantum wells of nonparabolic semiconductors. Made significant contribution to the fabrication of the first analog computer in India. Was the first to report the anisotropic behaviour of hot-electron Hall mobility and magnetoresistance under high fields. Built the high voltage pulser, the magnetometer using NMR, and the magnet power supply. Also worked on microwave properties of artificial dielectrics. A contactless microwave technique to measure the lifetime of carriers in semiconductors, proposed and demonstrated by the group is even widely used. Group also started work on the microwave oscillators using the then discovered Gunn diodes and reported the first such oscillator made in India.

Important Publications: **(1)** *Theory of electrical transport in semiconductors* (1972) Pergamon. **(2)** *Electron transport in compound semiconductors* (1980) Springer, Berlin. **(3)** *Physics of quantum well devices* (2000) Kluwer Academic.

Memberships: Fellow: INSA 78; INAE 87.

Awards & Distinctions: S S Bhatnagar Award 75 • IETE J C Bose Memorial Prize 75 • Jawaharlal Nehru Fellowship 75–77 • INSA Prize for Materials Sci. 93.

Nag, Kamalaksha



Elected: 1992
Position: INSA Sr Sci., IACS, Jadavpur
Specialization: Inorganic Chemistry
Date and Place of Birth: 6 July 1942; Barisal, Bangladesh
Parents: Nagendranath Nag and Sudha
Address: Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India
Tel. (033) 2473 4971/352 & 363 (O), (033) 2406 6575 (R)
email: ickn@iacs.res.in; URL: http://www.iacs.res.in/ickn.html

Education: Univ. of Calcutta: BSc Hons 61, MSc 63, PhD 68.

Career: Maulana Azad College, Calcutta: Lecturer 64; IACS, Calcutta: Res. Fellow 64–68, Dept of Inorganic Chem. Res. Offr/Lecturer 71–79, Reader 79–86, Prof. 86–2006, INSA Sr Sci. 2008–; BARC, Bombay: Sci. Offr 68–71; Colorado Univ., USA: Vis. Sci. 80–81; Univ. of Louis Pasteur, France: Vis. Sci. 87–88; Max Planck Inst. for Strahlen Chemie, Muelheim, Germany; INSA Sr Sci.

Scientific Work: The primary objective of research has been to find structure-property relationships in metallic compounds encompassing various aspects of chemistry of transition metals. These studies include: structural chemistry of macrocyclic complexes and supramolecular assemblies; cooperative interactions in polymetallic systems involving spin coupling, electron transfer and energy transfer processes; biomimetic modelling; activation of small molecules and metal-mediated transformations; tuning of spin and electron delocalization in mixed-valence systems, molecular magnetism; copper(I)-based solid electrolytes exhibiting very high ionic conductivity; harnessing spectroscopic properties of lanthanides to develop sensors.

Important Publications: **(1)** Synthesis, reactivities, and magnetostructural properties of Fe^{III}, Fe^{III}–O–Fe^{III}, and Zn^{II}Fe^{III}–O–Fe^{III}Zn^{II} complexes of tetraiminodiphenolate macrocycle (2006) *Inorg. Chem.* **45**, 12, 4830. **(2)** Efficient proton-templated synthesis of 18- to 38-membered tetraimino(amino)diphenol macrocyclic ligands: Structural features and spectroscopic properties (2004) *J. Org. Chem.* **69**, 16, 5419. **(3)** Mononuclear and binuclear ruthenium(II) complexes containing 2,2′-bipyridine or 1,10-phenanthroline and pyrazole-3,5-bis(benzimidazole). synthesis structure, isomerism, spectroscopy, and proton-coupled redox activity (1999) *Inorg. Chem.* **38**, 14, 3296. **(4)** Valence-delocalized and valence-trapped Fe^{II}Fe^{III} complexes: Drastic influence of the ligands (1997) *Angew. Chem. Int. Ed.* **36**, 1–2, 152. **(5)** Synthesis of a novel octaamino tetraphenol macrocyclic ligand and structure of a tetranuclear nickel(II) complex (1994) *Inorg. Chem.* **33**, 8, 1581.

Memberships: Fellow: INSA 90.

Awards & Distinctions: Cunningham Memorial Prize • Chemito Award • INSA Fellowship.

Nag, Subashis*

Elected: 1995
Specialization: Complex Analysis; Analytic Geometry; Mathematical Physics
Date and Place of Birth: 14 August 1955; Calcutta
Parents: Pranab Nag and Kajal
Spouse: Sutapa
Last Address: Institute of Mathematical Sciences, CIT Campus, Madras 600 113, India
***Deceased:** 22 December 1998

Education: Univ., of Calcutta: BSc Hons 76; Cornell Univ., USA: MS 78, PhD 80.

Career: Univ. of Michigan, USA, Dept of Maths: Asst Prof. 80–81; TIFR, Dept of Maths: Vis. Fellow 81–83; ISI, Dept of Maths/Statistics: Lecturer 83–87; Assoc. Prof. 87–90; Inst. Math. Sci, Madras: Sr Assoc. Prof. 91–98.

Scientific Work: Work in complex analytic geometry and the theory of moduli of Riemann surfaces, especially the discovery of the fundamental relationship of universal Teichmuller space to nonperturbative string theory. Discovered the completely natural connection between the diffeomorphism group of the circle and the Teichmuller spaces. Deduced thereby a form of the Mostow rigidity theorem as a corollary. Went on to find the universal version, living on the universal Teichmuller space, of the classical period mapping of Abel–Jacobi (that associates to each Riemann surface its period matrix). Worked on the universal Polyakov–Mumford form on universal Teichmuller space.

Important Publications: **(1)** *The complex analytic theory of Teichmuller spaces* (1988) Wiley-Interscience, New York.

Memberships: Fellow: INSA.

Awards & Distinctions: S S Bhatnagar Award.

Nagappa, Yedatore*

Elected: 1951
Specialization: Applied Palaeontology
Date and Place of Birth: 2 October 1907; Mysore, Karnataka
Last Address: The Assam Oil Company, Digboi, India
***Deceased:** 30 October 1960

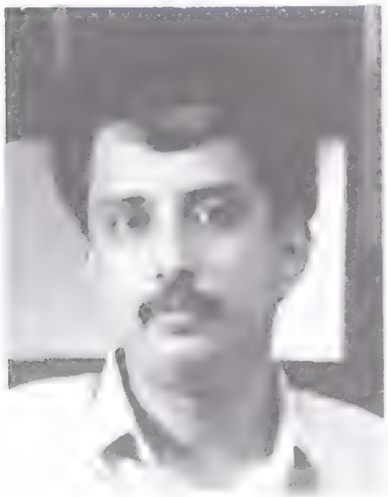
Education: Central College, Bangalore: BSc Hons 32, MSc 33.

Career: Burmah Oil Company: Palaeontological Staff 33–42; Assam Oil Company, Digboi: Geologist and Superintending Palaentologist 42–60.

Scientific Work: Field work in Burma, West Pakistan and India connected with the mapping for stratigraphical and structural information in search for oil. Specialized in Foraminifera and their use in economic paleontology. Published several papers on the scientific and paleontology of the tertiary succession of India and Burma.

Memberships: Fellow: Geological Mining and Metallurgical Soc.: USA; National Geographical Soc.; Palaeontological Soc.

Nagaraj, Ramakrishnan



Elected: 1992
Position: Sci., CCMB, Hyderabad
Specialization: Peptide Synthesis; Peptide Conformation; Membrane Biochemistry; Mechanisms of Antmicrobial Activity of Host-Defence Peptides
Date and Place of Birth: 10 February 1953; Nagpur, Maharashtra
Parents: A D Ramakrishnan and Mohana
Spouse and Children: Veena; one *d*
Address: Centre for Cellular and Molecular Biology, Uppal Road, Hyderabad 500 007, India
Tel. (040) 2719 2589 (O), (040) 2701 9882 (R), Mobile: 98483 03895
email nraj@ccmb.res.in; URL: www.ccmb.res.in

Education: Bombay Univ.: BSc 73; IIT Bombay: MSc 75; IISc, Bangalore: PhD 80.

Career: CCMB, Hyderabad: Sci. 90–.

Scientific Work: Research interests include unravelling how signal sequences initiate translocation of secretory proteins across membranes; peptide toxins and antibacterials; design structure elucidation and mechanism of action. Beta-structure as a common structural motif in signal sequences has been identified. The interaction of signal sequences with lipid component of membranes has been shown to be important for translocation.

Extensive work has made it possible to synthesize peptides with only antimicrobial activity without eukaryotic cell lytic activity.

Important Publications: **(1)** Seminal plasmin (1995) *Bioessays* **17**, 415–422. **(2)** Cell-lytic and antibacterial peptides that act by perturbing the barrier function of membranes: Facets of their conformational features, structure-function correlations and membrane-perturbing abilities (1994) *Biochim. Biophys. Acta* **1197**, 109–131. **(3)** Interaction of antimicrobial peptides with biological and model membranes: Structural and charge requirements for activity (1999) *Biochim. Biophys. Acta* **1462**, 29–54. **(4)** Tigerinins: Novel antimicrobial peptides from the Indian frog *Rana tigerina* (2001) *J. Biol. Chem* **276**, 2701–2707. **(5)** Antibacterial activities and conformations of bovine beta-defensin BNBD–12 and analogs: Structural and disulfide bridge requirements for activity (2002) *Peptides* **23**, 413–418.

Memberships: Fellow: INSA 98; NASI 99.

Awards & Distinctions: IASc Assoc. 85–88 • CSIR Young Scientist Award 88 • Homi Bhabha Fellowship 91 • S S Bhatnagar Award 94.

Nagaraja, Valakunja

Elected: 1999
Position: Prof, IISc, Bangalore
Specialization: Protein–Nucleic Acid Interactions; Restriction–Modification Systems, Molecular Biology of Mycobacteria ; Regulation of Gene Expression
Date and Place of Birth: 16 May 1954; Kanyana, Karnataka
Parents: V Mahadeva Shastry and V Parvathi Amma
Spouse: Jaya
Address: Microbiology and Cell Biology Department, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0668, (080) 2293 2598 (O), (080) 2341 8256 (R)
email: vraj@mcbl.iisc.ernet.in; URL: http://mcbl.iisc.ernet.in/vn.htm

Education: Bangalore Univ.: BSc 73, MSc 75; IISc: PhD 81.

Career: Univ. of Basel, Switzerland: Res. Assoc. 81–85; Univ. of Rochester, USA: Res. Assoc. 85–89; IISc: Asst Prof. 89–95, Assoc. Prof. 95–2000, Prof. 2000–.

Scientific Work: DNA transaction processes which play a key role in cellular function is the overall theme. Elucidating the distinctive properties of topoisomerases from mycobacteria has resulted in the design of inhibitors with novel mechanism of action. Chromosomally encoded gyrase inhibitors have been characterized and their *in vivo* function is shown to be protecting gyrase from other poisons. Elucidating a new mechanism of transcription activation, construction of novel regulatory circuits, defining alternate paradigm for transcription termination, discovering new facets of regulation of gene expression and unraveling the new catalytic and molecular mechanisms are other highlights.

Important Publications: **(1)** The evolution of DNA sequence specificity: A recombinant restriction enzyme has a hybrid recognition sequence (1985) *Nature* **316**, 371–372. **(2)** DNA unwinding mechanism for the transcriptional activation of *mom*P1 promoter by the transactivator protein C of bacteriophage Mu. (2001) *J. Biol. Chem.* **276**, 46941–46945. **(3)** Conserved economics of transcription terminators in eubacteria (2002) *Nucl. Acids Res.* **30**, 675–684. **(4)** A monoclonal antibody that inhibits mycobacterial DNA gyrase by a novel mechanism (2005) *Nucl. Acids Res.* **33**, 3085–3094. **(5)** Evolution of sequence specificity in a restriction endonuclease by a point mutation (2008) *Proc. Natl. Acad. Sci. USA* **105**, 10344–10347.

Memberships: Fellow: INSA 2004; NASI 2007; Soc. of Biological Chemists; Indian Cell Biology Soc.

Awards & Distinctions: Sreenivasayya Memorial Award • S S Bhatnagar Prize • Ranbaxy Sci. Foundation Award • Biotech Process, Product and Technology Development Award, DBT • J C Bose Fellowship • J Das Oration Award Indian Cell Biology Soc. • Hon. Prof. JNCSAR IISc Alumni Award for Excellence in Research.

Nagarajan, Kuppuswamy

Elected: 1974
Position: Corporate Adviser, Hikal Ltd, Bangalore
Specialization: Natural Products; Medicinal, Pesticide; Synthetic Heterocyclic Chemistry; Applications of NMR to Structure and Reactivity
Date and Place of Birth: 15 September 1930; Sirupalai, Villupuram, Tamil Nadu
Parents: K Kuppuswamy Iyer and Rajammal
Spouse and Children: Padmalochana; one *s*, one *d* (Srivatsan, Shobhana)
Address: Hikal Limited, R&D Centre, Kalena Agrahara, Banneraghatta Road, Bangalore 560 076, India
Tel. (080) 2658 5405 (O), (080) 2659 2350, (R), Mobile: 98867 13958
email: dknb69@yahoo.com, n_kuppuswamy@hotmail.com, k_nagarajan@hikal.com

Education: Univ. of Madras: BSc Hons 50, PhD 54.

Career: Presidency College CSIR Asst 54–57; Wayne State Univ.: USA 57–59; California Inst. of Technol., USA: 59–60; Zurich Univ. 61–62: Postdoc Res. Hindustan CIBA-GEIGY Ltd, Bombay, Medicinal Chem. Dn: Head 63–84; Searle (India) Ltd, Bombay, R&D Centre: Dir 84–92; Bangalore Pharmaceuticals and Res. Lab (P) Ltd: Dir (R&D) 92–2001; Hikal Ltd and Alkem Laboratories Ltd, Bombay: Corporate Advisor 2001–; AstraZeneca Res. Centre, Bangalore: Consultant 2001–.

Scientific Work: Discovered several novel reactions and elucidated their mechanisms. Elucidated structures of complex natural products like kopsine and ishwarone. Applied NMR spectroscopy to structures and reactivity. Studied complex structures and rearrangements in cyclobutadiene chemistry. Developed five new drugs registered in India, two of which, Sintamil and Satrogyl, are marketed in India. Developed new processes for many drugs, antiamoebic quinfamide and lifesaving azathioprine and pesticides like flucythrinate and etofenprox. Synthesized novel and potent anti TB molecules which has led to two analogues undergoing clinical trials. Collaborated with X-ray crystallographers in drug design, COX–2 inhibitors for antiinflammatory activity.

Important Publications: **(1)** *Bioorg. Med. Chem.* (1998) **6**, 2337. **(2)** *Tetrahedron Lett.* (1992) **33**, 7229 **(3)** *Eur. J. Med. Chem.* (1989) **24**, 631. **(4)** *Helv. Chim. Acta* (1978) **61**, 607; *Chem. Commun.* (1973) **926**.

Memberships: Fellow: INSA 77; Indian Chemical Soc.; Indian Pharmaceutical Assn; Common Wealth Pharmaceutical Assn; Maharashtra Acad. of Sci.; R. Soc. of Chem., UK • Member: CRSI; American Chemical Soc.; American Assn for Advancement of Science; Japanese Chemical Soc.

Awards & Distinctions: S S Bhatnagar Award 74 • CRSI Lifetime Achievement Award 2004.

Nagarajan, Radhakrishnan

Elected: 2001
Position: Adjunct Prof., UM-DAE-CBS, Mumbai
Specialization: Superconductivity; Magnetism; Heavy Fermion Behaviour; Mössbauer Spectroscopy; Instrumentation; Cryogenics
Date and Place of Birth: 9 August 1942; Triplicane, Tamil Nadu
Parents: K Radhakrishnan and S Ananthalakshmi
Address: 303, Dnyaneshwar, off- D. Gaikwad Road (near Tambe Nagar Jain Temple), Mulund (West)
Mumbai 400 080, India
Mobile: 93223 70689
email: nag@tifr.res.in

Education: Delhi Univ.: BSc (Hons) 62, MSc 63.

Career: Atomic Energy Establishment, Trombay: Trainee 63; TIFR: 64–78, Fellow 78–87, Reader 87–90, Assoc. Prof. 90–95, Prof. 95–2004; Univ. Mumbai, Dept of Atomic Energy, Centre for Excellence in Basic Sci., Kalina, Mumbai: Adjunct Prof. 2007–.

Scientific Work: Contributed significantly to instrumentation for Mössbauer spectroscopy and related fields with the development of data acquisition systems for Mössbauer spectroscopy, first using discrete integrated circuits and later on using microprocessors. These systems, developed in the Indian context, were adopted by many groups in India. In collaboration with colleagues at TIFR, investigated the valence fluctuation behaviour of Europium ion in several Europium-based intermetallics, using Mössbauer spectroscopy. In 1993, with colleagues, discovered superconductivity in yttrium–nickel–boron–carbon alloy (T_c ~15 K), the first system to exhibit superconductivity in a quaternary (four element) system. The discovery led to several new superconductors having transition temperature greater than 10 K, and some of them exhibiting the exotic phenomenon of coexistence of superconductivity with magnetism. The discovery gave rise to a new subject area of research 'superconductivity and magnetism in quaternary borocarbides'.

Important Publications: **(1)** Bulk superconductivity at an elevated temperature (T_c = 12 K) in a nickel containing alloy system Y–Ni–B–C, (1994) Phys. *Rev. Lett.* **72**, 274. **(2)** Superconductivity at 12K in Y–Ni–B system (1993) *Solid State Commun.* **87**, 413. **(3)** $SmNi_4B$: A narrow domain wall ferromagnet (2000) *Appl. Phys. Lett.* **77**, 895. **(4)** Anomalous behaviour of Mössbauer resonance width in mixed valence system $EuNi_2P_2$, (1985) *Phys. Rev.* **B32**, 2846. **(5)** Instrumentation for Mössbauer spectroscopy (1989) *Indian J. Pure Appl. Phys.* **27**, 393.

Memberships: Fellow: NASI 98, INSA 2000; Indian Physics Assn; Indian Cryogenic Council.

Awards & Distinctions: MRSI Medal 2001 • INSA Prize for Materials Sci. 2003 • R Srinivasan Award for Low Temperature Physics/Cryogenics of IUCDAEF, Indore.

Nagaraju, Javaregowda

Elected: 2003
Position: Staff Sci. & Head, Laboratory of Molecular Genetics, CDFD, Hyderabad
Specialization: Molecular Genetics and Evolution; Genetics of Silkmoths; Molecular Marker Genetics
Date and Place of Birth: 6 November 1954; Agraharabachahalli, K R Pet, Karnataka
Parents: Javare Gowda and Mayamma
Spouse and Children: G R Savithri; one *s*, one *d*
Address: Laboratory of Molecular Genetics, Centre for DNA Fingerprinting & Diagnostics (CDFD), 4-1-714 to 725/2, Tuljaguda Complex, Mozamzahi Road, Nampally, Hyderabad 500 001, India
Tel. (040) 2474 9341, 2474 9342 (O), (040) 2002 0319 (R), Mobile: 94901 19640
email: jnagaraju@cdfd.org.in; URL http://cdfd.org.in/stfjnag.html

Education: Mysore Univ.: BSc 75, MSc 77, PhD 91; Cavilam, France: Cert. in French 88.

Career: Central Silk Board; Mysore: Sr Res. Offr 83–87; Univ. of Lyon, France: Sr Res. Assoc. 88–90; Seribiotech Res. Lab, Bangalore: Dy Dir 90–98; Harvard Univ., USA: Vis. Sci. 97; Centre for DNA Fingerprinting and Diagnostics, Hyderabad: Laboratory of Molecular Genetics Staff Sci. & Head, 98–.

Scientific Work: The broad research area has been in molecular genetics and evolution, genetics and genomics of silkmoths and molecular markers genetics. The genome-wide analysis of microsatellite of *Bombyx mori*, evolutionary conservation of microsatellite loci in saturmid silkworms, construction of framework linkage map and Z-chromosome map and identification of W-chromosome linked genes, are important scientific contributions. Has been successful in development of RNAi-mediated baculovirus resistant transgenic silkworms. Identified a series of novel immune genes that are upregulated upon microbial infection and has functionally characterized these genes using RNAi strategy. Generated both intellectual property (SSR markers for authentication of Basmati rice) and freely accessible knowledge in the form of published databases including SilksatDb, MICDb, InsatDb, Wildsilk base. Some of the work on silkmoth has spun off into major applications in other systems e.g. basmati rice genotyping and DNA-based authentication.

Important Publications: **(1)** Intron loss is associated with gain of function in the evolution of the Gloverin family of antibacterial genes in *Bombyx mori* (2008) *J. Biol. Chem.* **34**, 23376–23387. **(2)** Noduler, a novel immune upregulated protein mediates nodulation response in insects (2007) *J. Immunol.* **179**, 6943–6951. **(3)** Survey and analysis of microsatellites in the silkworm, *Bombyx mori*: Frequency, distribution, mutations, marker potential and their conservation in heterologous species (2005) *Genetics* **169**, 197–214. **(4)** Genetic analysis of traditional and evolved Basmati and non-Basmati rice varieties by using fluorescence-based ISSR-PCR and SSR markers (2002) *Proc. Natl Acad. Sci. USA* **99**, 5836–5841. **(5)** Microsatellites of the silkworm, *Bombyx mori*: Abundance, polymorphism and strain characterization (1999) *Genome* **42**, 1057–1065.

Memberships: Fellow: NASI 2003; INSA 2008 • Genetic Soc. of America; Japanese Soc. of Sericultural Sci.; New York Acad of Sci. • Fellow: Andhra Pradesh Acad. of Sci.; Indian Acad. of Forensic Sci.

Awards & Distinctions: Biotech Product and Process Development & Commercialization Award 2003 Government of India • Best Scientist Award, Federation of Andhra Pradesh Chambers of Commerce • Tata Innovation Fellowship 2007.

Nagendra Nath, Nagesh Subba*

Elected: 1935
Specialization: Dynamics of Diamond Lattices
Date and Place of Birth: 10 May 1912; Chitaldurg, Karnataka
Parents: B N Subba Rao and Kapila Bai
Spouse and Children: Yamuna Bai; one *s*, three *d*
Last Address: Parimala, 1605, Rajajinagar, Bangalore 560 010, India
***Deceased:** 2 September 1979

Education: Univ. of Canterbury: PhD 62.

Career: IISc, Bangalore, Dept of Physics: Prof. of Maths; Sc. College, Patna: Prof. of Maths, Principal; Patna Univ., Bihar: Dir of Public Instruction.

Scientific Work: Pioneering and fundamental work in this area is the explanation given for the origin of the 1331 cm^{-1} frequency seen in diamond. From theoretical considerations, suggested that it arises from the relative oscillators of the two inter-penetrating face-centred lattices of diamond. Gave a theory for the diamond to graphite phase transformation and calculated the elastic constants of diamond. Undoubtedly most well-known contribution is the theory of the ultrasonic diffraction of light, a work in collabration with C V Raman. The fact that an incident plane wavefront emerges in a corrugated state when it traverses a medium kept in the field of an ultrasonic wave, is central to their theory. The theory accounted for many of the unusual effects that had defied an explanation. It may be remarked that this work, apart from being a citation classic, has led to innumerable research activities in many other branches of physics.

Nageswara Rao, Gullapalli

Elected: 2004
Position: Distinguished Chair of Eye Health, L V Prasad Eye Inst., Hyderabad
Specialization: Cornea; Community Eye Health; Eye Care Policy and Planning
Date and Place of Birth: 21 September 1945; Chodavaram, Andhra Pradesh
Parents: Gullapalli Venkateswara Rao and Venkata Lakshmi Narasamma
Spouse and Children: Pratibha Rao; one *s*, one *d*
Address: L V Prasad Eye Institute, L V Prasad Marg, Banjara Hills, Hyderabad 500 034, India
Tel. (040) 3061 2609 (O), (040) 2354 8405 (R)
email: gnrao@lvpei.org

Education: Andhra Univ.: MBBS 70; AIIMS: MD 74.

Career: American College of Surgeons: Fellow; Royal College of Physicians and Surgeons of Glasgow: Qua Surgeon; Tufts Med. School, USA: Fellow 74–75; Univ. of Connecticut, USA: Fellow 75–76; Univ. of Rochester: Asst Prof. 78–80, Assoc. Prof. 80–86; L V Prasad Eye Inst., Hyderabad: Dir 87–2004, Disting. Chair 2004–.

Scientific Work: Understanding of the structure-functioning, evaluation of corneal endothelium; normal biology of cornea, corneal infections, corneal transplantation and eye banking models of delivery of eye care.

Important Publications: **(1)** Endothelial cell morphology and corneal deturgescence (1979) *Ann. Ophthalmol.* **11**, 885–899. **(2)** Cell size-shape. Relationship in human corneal endothelium (1982) *Invest. Ophthalmol. Vis. Sci.* **22**, 271–274. **(3)** Is the current eye-care policy focus almost exclusively on cataract adequate to deal with business in India (1998) *Lancet* **351**, 1312–1316. **(4)** Early results of penetrating keratoplasty after cultivated limbal epithelium transplantation (2005) *Arch. Ophthalmol.* **123**, 334–340. **(5)** Impact of impaired vision and eye diseases on quality of life in Andhra Pradesh (2006) *Invest. Ophthalmol. Vis. Sci.* **47**, 11, 4742–4748.

Memberships: Fellow: NAMS, NASI 2005, Royal College of Surgeons; American College of Surgeons.

Awards & Distinctions: Ranbaxy Medal • Sr Honour Award, American Acad. of Opthalmology 98 • Doc of Sci., Univ. of New South Wales, Australia 2001 • Global Vision in Opthalmology Award, Bausch & Lomb, USA • Padma Shri 2002 • International Blindness Prevention Award, the Board of Trustees of American Acad. of Ophthalmology • Pisart Vision Award 2007, Lighthouse International, New York • Doctor of Science honoris causa, Univ. of Melbourne, 2007.

Naha, Kshitindramohan*

Elected: 1983
Specialization: Structural & Metamorphic Geology, Precambrian Geology
Date and Place of Birth: 2 January 1932; Comilla, Bangladesh
Parents: Jitendramohan Naha and Renuka
Spouse: (single)
Last Address: Department of Geology & Geophysics, Indian Institute of Technology, Kharagpur 721 302, India
***Deceased:** 24 May 1996

Education: Univ. of Calcutta: BSc Hons 51, MSc 53, DSc 59.

Career: Presidency College, Calcutta, Dept of Geology: Sr Res. Fellow 54–57; Univ. of Calcutta: Lecturer 57; IIT Kharagpur, Dept of Geology: Lecturer 58–62, Asst Prof. 62–71, Prof. 71–92, Emeritus Sci. 93–96; Univ. of California, USA: Vis. Prof. 68; La Trobe Univ., Australia: Sr Lecturer 75–76.

Scientific Work: Understood the kinematic significance of deformation lamellae in quartz; elucidated geometry and mechanism of folds in general and superposed folds in particular; methods of elucidating large-scale architecture of migmatites; methods of identifying angular unconformity in metamorphic terranes involved in superposed folding; methods of recognizing overthrusts in metamorphic terranes; elucidation of the interrelation of metamorphism and deformation in space and time in the Singhbhum Precambrian terrane and in the Simla Himalaya; sedimentation and palaeogeography of eastern Singhbhum; revision of stratigraphy and structure in the precambrian terranes of Singhbhum, Rajasthan and Karnataka, and in the Simla Himalaya.

Memberships: Fellow: INSA 77; NASI.

Awards & Distinctions: National Mineral Award 70 • S S Bhatnagar Award 72 • Jawaharlal Nehru Fellow 86–87

Nair, Gopalan Vijayakumaran

Elected: 1999
Position: Raja Ramanna Fellow, NIIST, Thiruvananthapuram
Specialization: Synthetic Organic Chemistry; Heterocyclic Chemistry; Medicinal Chemistry
Date and Place of Birth: 5 October 1941; Konny, Kerala
Parents: K Gopalan Nair and Pankajakshi Amma
Spouse and Children: Sita; two *d* (Vinita, Neelima)
Address: National Institute for Interdisciplinary Science & Technology, Thiruvananthapuram 695 019, India
Tel. (0471) 249 0406 (O), (0471) 235 8707 (R), Mobile: 98950 41707
email: vijaynair.tvm@gmail.com, vijaynair_2001@yahoo.com

Education: Kerala Univ.: BSc 60; BHU: MSc 62, PhD 67; Univ. of British, Columbia: PhD 69.

Career: Univ. of Chicago, Postdoc Fellow: 69–71; Univ. of Toronto: Postdoc Fellow 71–72; Columbia Univ.: Postdoc Fellow 72–74. Lederle Labs: Sr Res. Chem. 74–87, Principal Res. Chem. 87–90, Regional Res. Lab (now renamed NIIST): Dy Dir 90–97, Dir 97–2002; Dir Grade Sci. 2001–03; CSIR Emeritus Sc. 2003–05, Senior Assoc. JNCASR 2005–06; Raja Ramanna Fellow 2006–.

Scientific Work: Worked in organic chemistry, especially synthetic methodology. Contributions include the discovery of novel carbon–carbon and carbon–heteroatom bond-forming reactions and molecular rearrangements mediated by zwitterions, application of chemical electron transfer reactions in heterocyclic constructions, novel higher-order cycloadditions, insights into the cycloadditions of 1,2-quinones, design of novel multi-component reactions, application of NHC catalysis to organic synthesis, novel homoenolate mediated stereoselective synthesis of cyclopentanoid frameworks.

Important Publications: **(1)** Stereoselective synthesis of spirocyclopentanones via *N*-heterocyclic carbene catalysed reaction of enals and dienones (2008) *Chem. Commun.* **747**. **(2)** Cerium (IV) ammonium nitrates – a versatile single-electron oxidant (2007) *Chem. Rev.* **107**, 1862. **(3)** Novel reaction of Huisgen zwitterion with chalcones and dienones: Efficient strategy for the synthesis of pyrazoline and pyrazolopyridazine derivatives (2007) *Angew. Chem. Int. Ed.* **46**, 2070. **(4)** Engaging zwitterions in carbon–carbon and carbon–nitrogen bond-forming reactions: A promising synthetic strategy (2006) *Acc. Chem. Res.* **39**, 520. **(5)** *N*-heterocyclic carbene catalysed reaction of chalcones and enals via homoenolate: An efficient synthesis of 1,3,4-trisubstituted cyclopentenes (2006) *J. Am. Chem. Soc.* **128**, 8736.

Memberships: American Chemical Soc.; R. Soc. of Chem.; Chemical Res. Soc. of India; Intl Soc. of Heterocyclic Chemistry.

Awards & Distinctions: CRSI Silver Medal • Sukh Dev Endowment Lecture • Devaprabhakara Memorial Orientation.

Nair, Kappiareth Gopal

Elected: 1981
Specialization: Clinical Cardiology; Cardiac Biochemistry and Physiology; General Medicine
Date and Place of Birth: 2 July 1931; Kollengode, Kerala
Parents: Achath Govindan Nair and Kappiareth Bhargavi Amma
Spouse: Sumathi, one *s*, one *d*
Address: 8, Ashley House, 167-A, Colaba Road, Mumbai 400 005, India
Tel. (022) 3061 0555, (022) 2351 5008 (O), (022) 2215 0109 (R), Mobile: 92800 65386
email: nairkg@vsnl.net

Education: Univ. of Bombay: MBBS 53, MD 58; Univ. of Chicago, USA: PhD 62.

Career: Virus Res. Centre, Poona: Asst Res. Offr 53; KEM Hospital, Bombay: House Physician 54, Sr Resident and Medical Registrar 55–56, Prof., Dir and Head of Cardiology 71–79; Massachussets Gen. Hospital, Boston: Rotary Foundation Fellow 56–57; Univ. of Chicago, USA: Ortho Sprague Res. Fellow & Asst Prof. of Cardiology 59–62; Seth GS Med. College, Bombay: Asst Prof. of Medicine 62–63; National Inst. for Med. Res., UK: Vis. Sci.; Univ. of Pennsylvania, USA: Assoc. Prof. of Cardiology; Jaslok Hospital, Bombay: Hon. Sr Cardiologist 79; Hinduja Natl Hospital 84.

Scientific Work: Was the first to set up a machine to perform vector-cardiography. ECG signals were converted into a vectorcardiographic loop and it was shown for the first time that this technique yields a lot more information than the conventional ECG. Engaged in a biochemical project involving the purification of a key enzyme, cyctic nucleotide phospo-diesterase. Studied the molecular events which signal the development of cardiac hypertrophy. Focussed on taurine and its role in cardiac hypertrophy; role of cyctic AMP and cyclic GMP in the myocardium. Studied the properties of ischaemic sarcolemma and the role of free radical-mediated injury to cardiac membranes. Showed the occurrence of raised Lp(a) in lepromatous leprosy.

Memberships: Fellow: NAMS; Indian College of Physicians; London R. Soc. of Medicine; American College of Cardiology; International College of Angiology; Phillipine College of Cardiology.

Nair, Narayana Balakrishnan

Elected: 1977
Specialization: Aquatic Biology and Fisheries; Ecology
Date and Place of Birth: 6 July 1927; Perumbavoor, Kerala
Parents: Narayana Pillai and Lakshmi Kutty Amma
Spouse and Children: Gomathi Amma; one *s*, one *d*
Address: Swathi, Residency Road, Womens College Junction, Thycaud, Thiruvananthapuram 695 014, India
Tel. (0471) 232 3746 (R)

Education: Univ. of Madras: BSc Hons 49, MA 53, PhD 56, DSc 65.

Career: Alagappa College, Karaikudi: Lecturer in Zoology 49–56; Univ. of Bergen, Norway: Res. Assoc. 57–59; Univ. of Madras: Reader 59–62; Univ. of Kerala: Reader in Oceanography 62–68, Dept of Aquatic Biology & Fisheries: Prof. and Head 68–86; Royal Soc. and Nuffield Foundation Commonwealth Bursary 67–69; Organization of American States: Vis. Prof. 73–75; Univ. of Kerala, Faculty of Sci.: Dean 76–78; Chmn, State Committee on Sc., Technol. and Environment & Secretary to the Govt of Kerala 86–91; CSIR Emeritus Sci. 91–94.

Scientific Work: Discovered the path of enzymic hydrolysis of cellulose in wood-boring bivalves, the characteristics of penetration of substrates, the mechanism involved in the drilling process, and explained the related fluid dynamics. The adaptational sequence involved during the evolution of the rock and wood boring habits of the *Adesmacea* has been explained. Elucidated the biology of several species of shell fish and fin fish, their pathological aspects and aquacultural techniques. Contributed to the ecology of tropical wetlands, their conservation and management, ecology of marine algae, mangrove and seagrasses.

Memberships: Fellow: INSA 75; NASI 81; NAAS, TWAS; London Zoological Soc.; Zoological Soc. of India; Marine Biological Assn of India.

Awards & Distinctions: S S Bhatnagar Award 71 • INSA-JSPS Award 82 • Padma Shri 84.

Nair, Unni Sivaraman*

Elected: 1944
Specialization: Mathematical Statistics
Date and Place of Birth: 22 January 1904; Parur, Cochin
Parents: Unni Nair and Rugmini Amma
Spouse and Children: Saraswathi Amma; four *s*, one *d*
Last Address: Jacinth, Kaudiyar Road, Trivandrum 695 003, India
***Deceased:** 8 August 1982

Education: Univ. of Madras: BA, MA 24; Univ. of London: PhD 39.

Career: Maharaja College, Travancore: Asst Prof. of Maths 39–43; Travancore Univ.: Prof. and Head of Statistics Dept 44–59; Central Res. Inst., Trivandrum: Prof. of Statistics; UN ECAFE, Bangkok: Regional Census Adviser, Univ. of California, USA: Vis. Prof. 57.

Scientific Work: First paper was on Gini's mean difference in which an ingenious method of finding the standard error for a given distribution was developed. Next major work was a comprehensive study of the role of moment functions in distribution theory which discussed methods of deriving distribution laws for junctions of sample values using moment functions. Also gave an elegant mathematical solution to Wilk's type B integral equation. Studies on testing hypothesis on the difference between variances in two samples were devoted to developing unbiased tests. Also contributed to applied statistics in the form of an index of approximations.

Nakra, Bahadur Chand

Elected: 1995
Position: Distinguished Prof. Emeritus, Mech. Engg Dept, Inst. of Technology and Management, Gurgaon
Specialization: Vibration Engineering; System Dynamics Controls; Instrumentation
Date and Place of Birth: 31 March 1939; Mianwali
Parents: Nota Ram Nakra and Lilawati
Spouse and Children: Sharda; two *s*
Address: Mechanical Engineering Department, Institute of Technology & Management, HUDA Palam Vihar, Sector 23A, Gurgaon 122 017, India
Tel. (0124) 236 5811/251 (O), (0124) 407 5668 (R), Mobile: 98106 60668
email: bcnakra@hotmail.com, bcnakra@gmail.com

Education: Punjab Univ.: BSc 59; IIT Kharagpur: MTech 61; Univ of London : PhD 66.

Career: IIT Kharagpur: Tech. Teacher Training Fellow 59–62; IIT Delhi: Lecturer 62–63; Imperial College of Sc. and Tech., UK: Res. Fellow 63–66, Asst Prof. 66–71, Prof. 71–2000, BHEL Chair 2000–2002, Prof. of Eminence 2002–2004; Ram Rajendra Chair Prof. 2004–06, Dist. Prof. Emer. 2006–.

Scientific Work: Studies on vibration control using viscoelastic materials for complex structural systems and machinery isolation systems involving excitations over a wide frequency range, shock and random excitation conditions. Suggested through theoretical analysis and experimental work, the use of double core sandwich using dissimilar viscoelastic materials for improved performance over conventional systems. Contributions on development and applications of simpler analysis methods and studies at high frequencies involving several families of modes. Optimum dynamic system modification studies using sensitivity analysis and perturbation methods. Introduced damping as a dynamic design parameter in structural and rotating machinery systems; modelling and computer simulation of dynamic pressure in pneumatic brake systems, pressure pulsations in reciprocating compressors and vibrations in centrifugal pumps. Scientific studies on signature analysis for condition monitoring of machines and machine elements.

Memberships: Fellow: INSA 87; INAE 87; NASI 95; Inst. of Engg India; Acoustical Soc. of India.

Nanda, Krishna Kumar*

Elected: 1975
Specialization: Plant Physiology
Date of Birth: 1 January 1918, Dadan Khan, Jhelum, Pakistan
Children: two *s*, two *d*
Last Address: 3050, Sector 20-D, Chandigarh 160 020, India
***Deceased:** 13 December 1983

Education: Univ. of Lahore: BSc 39; BHU Varanasi: MSc 41; Univ. of Bombay: PhD 47.

Career: Delhi Univ.: Lecturer in Botany 47–60; Univ. of California, USA: Jr Res. Botanist 55–56; B R College: Assoc. Prof. 60; Forest Res. Inst., Dehra Dun, Plant Physiology Sec.: Sr Res. Offr 60–66; Indian Agri. Res. Inst.: Plant Physiologist 66–68; Panjab Univ., Chandigarh, Dept of Botany: Sr Prof. of Plant Physiology 68–80; ICAR: Emeritus Sci. 81–83.

Scientific Work: Studied the endogenous rhythms, the effect of light and temperature on correlation between reproductive development, growth pattern and plant yield to help develop crop-water models for maximizing yield. Also investigated regeneration and floral bud initiation in woody plants including *in vitro* culture of short meristems.

Memberships: Member: Indian Botanical Soc.; Japanese Soc. of Plant Physiology; American Assn for Advancement of Science • Fellow: INSA 73.

Awards & Distinctions: J J Chinoy Gold Medal 69 • IARI Rafi Ahmed Kidwai Prize 72–73 • Birbal Sahni Medal 77 • UGC Natl Lecturer 76–77.

Nandi, Arun Kumar

Elected: 2009
Position: Sr Prof., Polymer Sci. Unit, IACS, Jadavpur, Kolkata
Specialization: Polymer Crystallization and Gelation; Polymer Blends and Hybrids; Polymer Nanocomposites; Supramolecular Polymers
Date and Place of Birth: 21 February 1955; Belboni, Bankura, West Bengal
Parent: Anath Bandhu Nandi and Ashalata
Spouse and Children: Bithika (Atta); one *s*, one *d* (Amrit, Debasmita)
Address: Polymer Science Unit, Indian Association for the Cultivation of Science, Jadavpur,
Kolkata 700 032, India
Tel. (033) 24734971 (extn 561) (O), (033) 2435 1340 (R)
email: psuakn@iacs.res.in

Education: Burd. Univ.: BSc (Hons) 75, MSc 77; Jadavpur Univ.: PhD 86.

Career: Shyam Sundar College: Lecturer 83–84; Sripat Singh College Lecturer 84–86; North Bengal Univ.: Lecturer/ Sr Lecturer 86–92; Florida State Univ.: Postdoc. 88–89. Indian Assoc. for the Cultiv. Sci.: Sr Lecturer, Reader, Prof. and Sr Prof. 92–.

Scientific Work: Has explored the the mechanism of PVDF and P3AT co-crystallization, elucidated the mechanism of gelation of thermoreversible PVF2 gels and tripeptide organogels in terms of percolation theory and theory of fibrillar crystallization, discovered a new thermoreversible hydrogel of riboflavin-melamine supramolecular complex with enhanced photoluminescence property, successfully immobilized DNA in the intact form for the first time on a conducting polymer, poly(o-methoxy aniline) (POMA). Used the reducing property of an organically soluble conducting polymer [poly(o-methoxyaniline), POMA] to prepare mono-dispersed, size controlled, highly populated and highly stable silver nanoparticles in organic medium through an interfacial redox process with aqueous $AgNO_3$ solution and prepared P3AT nanocomposites with clay, carbon nanotube, etc. and obtained improvment in mechanical, thermal electronic and conductivity properties.

Important Publications: **(1)** Nano-structured self assembly of double stranded DNA and poly(o-methoxyaniline) hybrid (2007) *J. Phys. Chem.* **C111**, 6268. **(2)** Preparation of size-controlled, highly populated, stable and nearly monodispersed Ag nanoparticles in organic medium from a simple interfacial redox process using a conducting polymer (2007) *Langmuir (Lett.)* **23**, 5231–5237. **(3)** Multiporosity in dried poly(vinylidene fluoride) camphor gels: Effect of drying method on porosity (2007) *Macromolecules* **40**, 2008. **(4)** Synthesis, optical and electrical characterization of organically soluble silver nanoparticles and its poly(3-hexylthiophene) nanocomposites: Enhanced luminescence property in the nanocomposite thin films (2007) *Chem. Mater.* **19**, 5443–5452. **(5)** A mechanistic approach on self-organization of the two-component thermoreversible hydrogel of riboflavin and melamine (2007) *Langmuir* **23**, 13126 –13135.

Memberships: Member: SPSI; MRSI; CRSI; ISSST • Fellow: West Bengal Acad. of Science & Technol. 2006.

Awards & Distinctions: MRSI Bronze Medal 2004 • M Santappa Award in Polymer Science 2004 • CRSI Bronze Medal 2006 • Bharat Jyoti Award 2008.

Nangia, Ashwini

Elected: 2008
Position: Prof., Univ. of Hyderabad, Hyderabad
Specialization: Organic Chemistry; Crystal Engineering; Supramolecular Chemistry
Date and Place of Birth: 10 November 1960; Surat, Gujarat
Parents: Chaman Lal Nangia and Sarla
Spouse and Children: Uma Devaguptapu; two *d*
Address: School of Chemistry, University of Hyderabad, Hyderabad 500 046, India
Tel. (040) 2313 4854, (040) 2301 1338 (O), (040) 2332 7570 (R), Mobile: 98481 55416
email: ashwini.nangia@gmail.com; URL: www.uohyd.ernet.in

Education: IIT Kanpur: MSc 83; Yale Univ.: PhD 88.

Career: Natl Organic Chemical Industries Ltd. Mumbai: Sci. 88–89, Univ. of Hyderabad: Lecturer 89–93, Reader 93–2001; Prof. 2001–.

Scientific Work: Started independent research on the synthesis of iridoid lactones, enzyme inhibitors and steroid analogues in 1989 and produced four PhD theses. Realizing the importance and potential of the emerging supramolecular chemistry field in the mid-nineties, shifted focus towards crystal engineering problems in the second half of the decade and quickly established a research program on host–guest inclusion compounds, hydrogen bonding, polymorphism, and cocrystals. Demonstrated the significance of recurring halogen trimer synthon in the self-assembly of hexagonal host frameworks and postulated O–H–O hydrogen bond shortening in neutral arrays of polycarboxylic acids. Molecular conformer and crystal lattice energy balance in conformational polymorphs of organic molecules were analysed. Contributed to the new field of cocrystals and its applications in the pharmaceutical industry.

Important Publications: **(1)** Crystal engineering – Inclusion compounds, molecular networks, cocrystals, and polymorphs (2008) *Cryst. Growth Des.* **8**, 1079. **(2)** Conformational polymorphism in organic crystals (2008) *Acc. Chem. Res.* **41**, 595. **(3)** Polymorphs of 1,1-bis(4-hydroxyphenyl)cyclohexane and multiple *Z* crystal structures by melt and sublimation crystallization (2006) *Chem. Commun.* 4918. **(4)** Polymorphs and polymorphic cocrystals of temozolomide (2008) *Chem. Asian J.* **3**, 1122. **(5)** Amide-*N*-oxide heterosynthon and amide dimer homosynthon in cocrystals of carboxamide drugs and pyridine *N*-oxides. (2007) *Mol. Pharmaceutics* **4**, 417.

Memberships: Fellow: NASI 2008; INSA 2009; R. Soc. of Chem.

Awards & Distinctions: IASc Assoc. 92–95 • DST Ramanna Fellowship.

Nanjundiah, Vidyanand

Elected: 1984

Position: Prof., IISc, Bangalore
Specialization: Developmental Biology; Theoretical Biology; Evolution
Date and Place of Birth: 14 November 1947; Bombay
Spouse and Children: Veena; one *d*
Address: Developmental Biology & Genetics Laboratory, Indian Institute of Science,
Bangalore 560 012, India
Tel. (080) 2293 2764 (O), (080) 2667 0631 (R)
email: vidya@ces.iisc.ernet.in

Education: Univ of Bombay: BSc 67; Univ. of Chicago: PhD 72.

Career: Hubrecht Laboratorium, The Netherlands 73; Max-Planck Inst., Germany: 74–75; Univ. of Basel, Switzerland: 75–76; IISc, Bangalore, Centre for Theoretical Studies: Asst Prof. 76–80; TIFR, Bombay, Molecular Biology Unit: Reader and Assoc. Prof. 80–88; IISc, Developmental Biology & Genetics Lab. & Centre for Ecological Sci.: Prof. 89–.

Scientific Work: Early work was on chemotaxis and cell-to-cell communication in the social amoebae (cellular slime moulds); subsequently, on pattern formation, phenotypic plasticity and the evolution of social behaviour.

Important Publications: **(1)** Chemotaxis, signal relaying, and aggregation morphology (1973) *J. Theor. Biol.* **42**, 63–105. **(2)** Tip regeneration and positional information in the slug of *Dictyostelium discoideum* (1983) *J. Embryol. Exp. Morphol.* **73**, 151–162. **(3)** The precision of regulation in *Dictyostelium discoideum*: Implications for cell-type proportioning in the absence of spatial pattern (1995) *Indian J. Biochem. Biophys.* **32**, 404–416. **(4)** Phenotypic plasticity can potentiate rapid evolution (2004) *J. Theor. Biol.* **226**, 177–184. **(5)** Social behaviour in genetically heterogeneous group of *Dictyostelium giganteum* (2006) *Behav. Ecol. Sociobiol.* **59**, 4, 521–530. **(6)** The genetic basis of dominance, in: The biology of genetic dominance (2006) Eurekah/Landes Bioscience, pp. 1–16. **(7)** The trishanku gene and terminal morphogenesis in *Dictyostelium discoideum* (2009) Evolution and Development (November/December).

Memberships: Fellow: INSA 98.

Naqvi, Syed Wajih Ahmad

Elected: 1995
Position: Sci., NIO, Dona Paula
Specialization: Chemical Oceanography; Palaeo-Oceanography Global Change
Date and Place of Birth: 10 August 1954; Amroha, Uttar Pradesh
Parents: Sibte Mehmood Naqvi and Aziz Fatima
Spouse and Children: Khamisa Zarreen; one *s*, one *d*
Address: National Institute of Oceanography, Dona Paula 403 004, India
Tel. (0832) 245 0294 (O), (0832) 245 3463, (0832) 245 0786 (R)
email: naqvi@nio.org

Education: Lucknow Univ.: BSc 72, MSc 74; Poona Univ.: PhD 87.

Career: National Inst. of Oceanography, Chemical Oceanography Dn: JRF 74–76, Jr Sci. Asst 76–78, Sr Sci. Asst 78–81, Sci. 81–.

Scientific Work: Research focusses on processes controlling production and degradation of organic matter, and associated cycles of macro- and micro-nutrients (especially C, N and Fe) in aquatic environments, particularly in the Indian Ocean. Work greatly improved the understanding of processes associated with anoxic ecosystems, including high respiration rates and associated microbially-formed nepheloid layers in suboxic waters. Quantification of denitrification and nitrous oxide emissions in the Indian Ocean have led to revisions of the global nitrogen budget. Work also established that human activities cause an increase of nitrous oxide emission from the oceans. Has been instrumental in setting up a world-class biogeochemistry group and laboratory in NIO.

Important Publications: **(1)** The Indian Ocean. (2008) *Nitrogen in the marine environment,* Elsevier, 631–681. **(2)** Increased marine production of N_2O due to intensifying anoxia on the Indian continental shelf (2000) *Nature* **408**, 346–349. **(3)** Budgetary and biogeochemical implications of N_2O isotope signatures in the Arabian Sea (1998) *Nature* **394**, 462–464. **(4)** Nitrous oxide in the Arabian Sea (1991) *Deep-Sea Res.* **38**, 871–890. **(5)** Some aspects of the oxygen deficient conditions and denitrification in the (1987) *Arabian Sea. J. Mar. Res.* **49** 1049–1072.

Memberships: Fellow: INSA 2001; NASI 2002; TWAS 2008; Soc. of Biosciences National Acad. of Sciences.

Awards & Distinctions: CSIR Young Scientist Award 87 • MAAS Young Scientist Award 92 • S S Bhatnagar Prize 96 • Vigyan Ratna 2004.

Narahari, Yadati

Elected: 2008
Position: Prof., IISc, Bangalore
Specialization: Game Theory and Mechanism Design; Electronic Commerce Internet ; Network Economics
Date and Place of Birth: 1 July 1959; Kosgi, Andhra Pradesh
Parents: Y Simhadri Sastry
Spouse and Children: Y N Radha; one s, (Naganand)
Address: Department of Computer Science and Automation, Indian Institute of Science,
Bangalore 560 012, India
Tel. (080) 2293 2773 (O), (080) 2331 0265 (R)
email: hari@csa.iisc.ernet.in; URL: http://lcm.csa.iisc.ernet.in/hari

Education: Bangalore Univ.: BSc 79; IISc: BE 82, ME 84, PhD 88.

Career: IISc, Dept of Computer Sci. & Automation: Sci Offr 87–88, Lecturer 88–89, Asst Prof. 89–2001, Prof. 2001–; MIT, Cambridge: Postdoc Res. 92; National Inst. of Standards and Technology, Maryland: Vis. Sci. 97.

Scientific Work: Work in electronic commerce (2000–08) focussed on developing efficient auction and market algorithms using game theory and mechanism design, with applicability to real-world problems in the areas of procurement auctions and sponsored web search auctions. Work on factory modelling (1985–95) using queueing networks and stochastic Petri nets led to rigorous methods for manufacturing systems design and control. Work on supply chain design (1995–2000) led to the invention of a popular notion, six sigma supply chains, and a novel supply chain design methodology.

Important Publications: **(1)** *Game theoretic problems in network economics and mechanism design solutions* (2009) Springer Monograph Series: Advanced Information and Knowledge Processing (AI & KP). **(2)** *Performance modelling of automated manufacturing systems* (1992) Prentice-Hall, Englewood Cliffs, New Jersey, USA. **(3)** Object oriented modelling for decision support in supply chain networks (2004) *European J. Oper. Res.* **153**, 704–726. **(4)** A theory of mechanism design for single leader Stackelberg problems (2008) *IEEE Trans. Automation Sci. Eng.* **5**, 3, 297–321. **(5)** Design of an optimal bayesian incentive compatible broadcast protocol for ad-hoc wireless networks with rational nodes (2008) *IEEE J. Selected Areas in Commun.* 1138–1148.

Memberships: IEEE 2008; ORSI; INAE 2003; NASI 2007.

Awards & Distinctions: Homi Bhabha Fellowship • C V Raman Award 98.

Narain, Prem

Elected: 1987
Position: INSA Hon. Sci., IARI
Specialization: Statistical Genetics and Genomics
Date and Place of Birth: 3 January 1934; Lucknow, Uttar Pradesh
Parents: Govind Narain Verma and Lalli Devi
Spouse and Children: Krishna; one *s*, (Dhirendra Verma)
Address: B-3/27A, Lawrence Road, Keshavpuram, New Delhi 110 035, India
Tel. (011) 2710 5442 (R), Mobile: 9911 74042
email: narainprem@hotmail.com

Education: Lucknow Univ.: BSc 52, BSc Hons 53, MSc 54; Univ. of Edinburgh: PhD 69, DSc 84.

Career: Ministry of Transport, New Delhi: Statistical Investigator 55–58; Indian Veterinary Res. Inst., Izatnagar, Animal Genetics Dn: Asst Res. Offr 58–61; Indian Agri. Statistics Res. Inst., New Delhi: Asst Prof. 61–70, Prof. 70–75, Sr Prof. 75–78, Jt Dir 78–81, Dir 81–92; (Colombo Plan Scholar, Inst. Animal Genetics, Univ. of Edinburgh, 67–69), IARI, New Delhi: Principal Sci. 92–93, Dean & Jt Dir (Education) 93–94, Prof. Emeritus 94–99; Member, National Statistical Commission, Govt of India 99–2000, INSA Hon. Sci. 2006–.

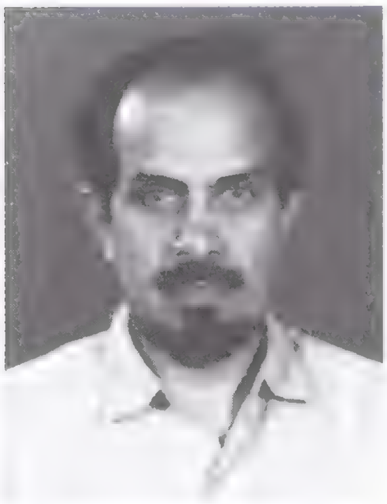
Scientific Work: Statistical genetics and agricultural statistics dealing with mathematical and statistical approaches to problems in genetics, breeding, genomics and agriculture: The effect of linkage on the homozygosity of populations undergoing mixed selfing and random mating was determined. A new concept of the average and variance of time taken for the fixation of a gene in finite populations was developed. A new method of conditioned diffusion equations was introduced. Optimality criteria in the context of Fisher's fundamental Theorem of Natural Selection was investigated. The accuracy of marker-assisted selection using auxiliary traits was studied. The genetic basis of transmission disequilibrium test (TDT) for two linked marker loci was investigated. A dialectical perspective to agricultural research for sustainable development was presented.

Important Publications: **(1)** *Statistical genetics* (1990) John Wiley & Sons, New York and Wiley Eastern Limited, New Delhi. **(2)** On an extremum principle in the genetical theory of natural selection (1993) *J. Genet.* **72**, 59–71. **(3)** Accuracy of marker-assisted selection with auxiliary traits (2003) *J. Biosci* **28**, 101–111. **(4)** Evolutionary genetics and statistical genomics of quantitative characters (2003) *Proc. Indian Natl. Sci. Acad., Biol.Sci.* **B69**, 273–352. **(5)** A theoretical treatment of interval mapping of a disease gene using transmission disequilibrium test (TDT) (2007) *J. Biosci.* **32**, 1317–1324.

Memberships: Fellow: INSA 78; NASI 84; NAAS 90; London R. Statistical Soc.; National Acad. of Agri. Sci.; Indian Soc. of Genetics & Plant Breeding; Indian Soc. of Agri. Statistics • Member: UK General Council of Edinburgh University; International Statistical Institute; International Biometric Soc.; American Statistical Assn.

Awards & Distinctions: Rafi Ahmed Kidwai Memorial Prize 77 • G P Chatterjee Memorial Lecture Award 87 • Sankhyiki Bhushan Award 91 • Om Prakash Bhasin Foundation Award for Sci. & Technol. 92 • Distinguished Service Award 93 • M S Randhawa Medal 97–98 • National Award in Statistics of Govt of India 2003 • B P Pal Memorial Lecture Award 2007.

Narasimha, Roddam



Elected: 1973
Position: Chmn, Engg Mechanics Unit, JNCASR, Bangalore
Specialization: Aerospace Engineering; Fluid Mechanics; Atmospheric Science and Technology Policy
Date and Place of Birth: 20 July 1933; Bangalore
Parents: R L Narasimhaiya and R N Leela Devi
Spouse and Children: Neelima, two *d*
Address: Engineering Mechanics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research,
Bangalore 560 064, India
Tel. (080) 2208 2999 (O), (080) 2341 2705 (R)
email: roddam@caos.iisc.ernet.in; URL: http://www.jncasr.ac.in/emu/rnsimha

Education: Univ. of Mysore: BE 53; IISc, Bangalore: Dip. in Aeronautical Engg 55, Assoc. 57; California Inst. of Technol.: PhD 61.

Career: Department of Aerospace Engg, IISc, Bangalore: National Inst. of Sci. Jr Fellow 55–57, Asst Prof. 62–67, Assoc. Prof. 67–70, Prof. 70–94, Chmn, Centre for Atmospheric Sci. 82–89, INSA Golden Jubilee Res. Prof. 92–94, ISRO K R Ramanathan Prof. 95; HAL, Bangalore: Chief Project Co-ordinator 77–79; NAL, Bangalore: Dir 84–93; JNCASR: Hon. Prof. 90–; NIAS, Bangalore: 97–2004.

Scientific Work: Contributed in a large way to improve understanding of flows in transition from laminar to turbulent state and the reverse. Developed a widely-used model for the intermitency distribution in the transition zone of a boundary layer. Experimental investigation on relaminarization led to the identification of three basic typs. Conducted investigations of fundamental importance for understanding structure and memory of fully turbulent flows. Discovered Navier–Stokes type constitutive relations in free-molecule flow of a gas cloud and obtained solutions for the structure of a shock wave with the use of novel group theoretic methods. Derived equations for the nonlinear motion of an elastic string. Investigated a real-life airworthiness problem of an aircraft. Specified International Tropical Reference Atmosphere for aviation authorities. Has been closely associated with the development of aerospace technology in the country.

Memberships: Fellow: INSA 79; INAE 87; TWAS 88; NASI 89; Royal Soc., UK 92; American Inst. of Aeronautics and Astronautics 93 • Chmn: Asian Fluid Mechanics Committee • Foreign Assoc.: US Natl Acad of Engg 89 • Acad. Fellow: US Natl Acad Sci.: 2000.

Awards & Distinctions: S S Bhatnagar Award 76 • Karnataka Rajyotsava Award 86 • Padma Bhushan 87 • Fluid Dynamics Prize, AIAA • Ramanujam Medal, Indian Sci. Congress • INAE Life-time Contribution to Engg • ISCA Srinivasa Rajamnujan Medal 88 • INSA Bhatnagar Medal 85 • Instn of Engrs Natl Design Award 96.

Narasimham, Nishtala Appala*

Elected: 1966
Specialization: Spectroscopy; Astrophysics; Atomic and Molecular Physics
Date and Place of Birth: 15 August 1922; Parlakemidi, Orissa
Parents: Nishtala Satyanarayana and Suramma
Spouse: Kamala, one *s* (Prasad)
Last Address: 18, Saras Baug, Deonar, Bombay 400 088, India
***Deceased:** 8 April 2002

Education: Andhra Univ.: BA 42; BHU, Varanasi: MSc 45, PhD 52.

Career: Hindu College, Machilipatnam: Demonstrator 42–43; AVN College, Vizag: Lecturer 45–47; Vijaya College, Bijapur: Head, Phys. Dept 47–49; BHU Varanasi: Res. Fellow 49–52; Univ. of Wisconsin, USA, Dept of Phys.: Res. Project Assoc. 52–53; Univ. of Oklahoma Res. Inst., USA, Dept of Phys.: Res. Assoc. 53–55; National Res. Council of Canada, Herzberg Inst. of Astrophysics, Canada: Postdoc Fellow 55–57; BARC, Bombay, Sci. Offr 57–82, Head, Spectroscopy Sec. 57–63, Spectroscopy Dn 63–79, Head, Analysis Group 79–82; INSA Sr Sci. 85–87.

Scientific Work: Has done extensive work on high resolution spectra of molecules of astrophysical importance, e.g. P_2NH_5, NS, PS, PO, SO and S_2 and ions O_2^+, P_2^+, PH^+ and PD^+. Discovered the missing lines of S_2 $3\pi_g - 3\varepsilon_u^-$ to be antisymmetric rotational lines, thus establishing the nuclear spin of ^{34}S to be zero. Obtained diffuse bands in the electronic emission spectra of xenon and krypton halides which are found to be intense sources of laser emission in the much-desired ultraviolet region. Other studies relate to laser spectroscopy and laser spectroscopic techniques for trace analysis and X-ray spectroscopy and atomic specra of rare-earth ions in crystalline matrix and garnets.

Important Publications: **(1)** Spectroscopic studies of ozoniser discharges: Part I (1951) *J. Sci. Res.* **1**, 78; Part II (1952) *J. Sci. Res.* **2**, 121; Part III (1952) *Indian J. Phys.* **35**, 512. **(2)** A new electronic transition in NS (1975) *J. Mol. Spectrosc.* **54**, 160. **(3)** A rotational analysis of the ultraviolet bands of PS (1979) *Pramana – J. Phys.* **12**, 707–716.

Memberships: Fellow: INSA 71; Andhra Pradesh Acad. of Sc.73 • President: Phys. Section of ISCA 75 • Member: American Physical Soc.; Optical Soc. of America; American Assn for the Advancement of Science.

Awards & Distinctions: INSA Rangadhama Rao Mem. Lecture 83 • C V Raman Birth Centenary Medal 88.

Narasimham, Vemuri Syamala

Elected: 1984
Specialization: Cosmic Ray Physics; Particle Physics
Date and Place of Birth: 7 October 1937; Kaikaluru, Andhra Pradesh
Parents: Venkata Krishnayya
Spouse and Children: Meenakshi; one *s*, one *d*, (Navin and Sujata)
Address: 202, Vigyan, Sector 17, Plot 23, Vashi, Navi Mumbai 400 703, India
Tel. (022) 2766 6155 (R), Mobile: 98197 14541
email: narasimham.vemuri@gmail.com

Education: Andhra Univ.: BSc Hons 57, MSc 58; BARC Trg School 59; Bombay Univ.: PhD 67.

Career: TIFR, Bombay: Assoc. Prof., Prof., Sr Prof. 59–2002.

Scientific Work: Well known in the high energy physics and cosmic ray community of the world for very important contributions on several aspects of deep underground cosmic radiation involving interactions of ultra high energy muons and natural neutrinos. One of the important members of the team which discovered the natural neutrinos at Kolar Gold Fields in 1965, and carried out the first dedicated experiment in search of proton decay in the Kolar Gold Mines in 1980. Led a group from TIFR, in the DZERO experiment at Tevatron accelerator in Fermilab, Illinois, USA, and was a member of the discovery team of the TOP quark in 1995. Led a group from TIFR in contributing to the CMS detector in LHC at CERN, Geneva.

Important Publications: **(1)** Cosmic ray intensity measurements deep underground at depths of 800–8400 m.w.e (1964) *Nuovo Cim.* **32**, 1505. **(2)** Detection of muons produced by cosmic ray neutrinos deep underground (1965) *Phys. Lett* **18**, 196. **(3)** Fully confined events indicative of proton decay in Kolar Gold Field detector (1982) *Phys. Lett.* **115B**, 349. **(4)** A multi TeV muon bundle observed in the KGF detector (1991) *Phys. Lett.* **B267**, 138. **(5)** Observation of the top quark (1995) *Phys. Rev. Lett.* **74**, 2632.

Memberships: Fellow: NASI 95.

Narasimhan, Mandyam Jeersannidhi*

Elected: 1935
Specialization: Mycology; Plant Pathology
Date and Place of Birth: 1 July 1891; Madras
Parents: M J Srinivasan and Alamelamma
Spouse and Children: Vengadamma; one *s*, three *d*
Last Address: Government of Mysore, Bangalore, India
***Deceased:** 24 September 1970

Education: BA.

Career: Govt of Mysore, Bangalore: Asst Mycologist, Mycologist 14–22; Director of Agriculture: Govt of Mysore 22–46.

Scientific Work: With L C Coleman, discovered a mycological paradise in the dense untrodden forests and the vast coffee and areca plantations of Mysore. Introduced fungicidal control of the diseases epiphytotic koleroga in areca palm. Strains occuring on *Santalum, Bryophyllum* and others were demonstrated to produce oospores on mating. Also was involved in handling plant protection programme in the coffee rust diseases incited by *Hemileia vastatrix*. Established the presence of several races of the rust pathogen on host differentials discovered and germinated its teliospores. Has several genera and species names in his honour.

Narasimhan, Mudumbai Seshachalu

Elected: 1970
Position: Hon. Prof., IISc, Bangalore
Specialization: Algebraic and Differential Geometry and Analysis
Date and Place of Birth: 7 June 1932; Thandarai, Tamil Nadu
Parents: Seshachalu Iyengar and Padmasani
Spouse and Children: Sakuntala; one *s*, one *d*
Address: Guru Paradise Apartments, 24, 4th Main Road, Amarjyothi Layout, Sanjaynagar,
Bangalore 560 094, India
Tel. (080) 2293 3217 (O), (080) 2351 8865 (R), Mobile: 9886 481457
email: narasim@math.tifrbng.res.in

Education: Madras Univ.: BA Hons 53; Bombay Univ.: PhD 60.

Career: TIFR, Bombay: Reader, Assoc. Prof. 53–65, Prof. 65–75, Sr Prof. 75–90, Prof. of Eminence 90–93; Executive Committee of International Mathematical Union: Member 82–86; Natl Board for Higher Mathematics, GOI: President 83–87; ICTP, Italy: Dir of Mathematics 93–2000; SISSA, Triesta: 2000–05; TIFR Centre, Bangalore 2005–07; IISc Hon. Prof. 2008–.

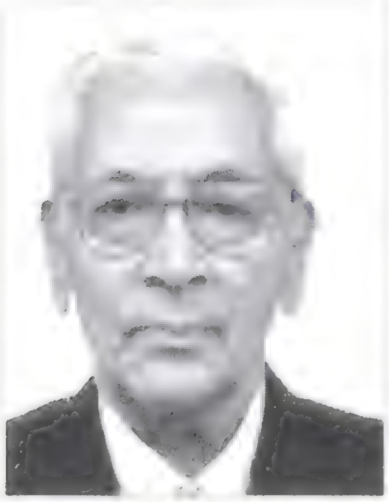
Scientific Work: Contributed to algebraic geometry and theory of vector bundles on curves and higher dimensional varieties. Work in differential geometry pertains to theory of connections and gauge theory; in Lie groups, to the concrete realization of the discrete series representations; in analysis, to a theorem characterizing real analytic functions in terms of powers of an elliptic operator.

Important Publications: **(1)** Regularity theorems for fractional powers of a linear elliptic operator (1962) *Bull. Soc. Math. France.* **(2)** Existence of universal connections (1961) *Am. J. Math.* **(3)** Stable and unitary vector bundle on a compact Riemann surface (1965) *Ann. Math.* **(4)** An analogue of Borel Weil–Bott theorem for hermitian symmetric pairs of non-compact type (1970) *Ann. Math.* **(5)** On the cohomology groups of moduli spaces of vector bundles on curves (1975) *Math. Ann.*

Memberships: Fellow: INSA 71; TWAS 88; NASI 88; Royal Soc. London 96.

Awards & Distinctions: S S Bhatnagar Award 75 • UGC Meghnad Saha Award 78 • TWAS Award 87 • Chevalier de l'Ordre National du Merite, France 89 • Padma Bhushan 90 • C V Raman Birth Centenary Award 94 • King Faisal International Prize in Science 2006.

Narasimhan, Nurani Sivaramakrishna



Elected: 1983
Specialization: Synthetic Organic Chemistry; Chemistry of Natural Products; Organolithium Compounds
Date and Place of Birth: 11 November 1928; Nurani Village, Palghat, Kerala
Parents: N N Sivaramakrishna Iyer and Apithakuchambal
Spouse and Children: T V Subbalakshmi; one *s*, two *d* (Sivaramakrishnan, Rajalakshmi, Lakshmi)
Address: 22, Niyoshi Park II, D P Road, Aundh, Pune 411 007, India
Tel. (020) 2588 0178 (R)
email: nsn1928@gmail.com

Education: Univ. of Madras: BSc Hons 50, PhD 54.

Career: Presidency College, Madras: Res. Student 50–54, National Postdoc Res. Fellow 55–58; Univ. of Poona, Pune, Dept of Chem.: Reader, Prof. and Head 58–89; Univ. of Zurich: Res. Assoc.71–72; INSA: Sr Sci. 89–92; Univ. of Alberta, Canada: Vis. Prof. 80; Southern Methodist Univ., USA: Vis. Prof. 88; INSA-JPS Vis. Sci. to Japan 88; CAR, SPIC Sci. Foundation, Chennai: Dir 94–97; Univ. of Canterbury, New Zealand: Vis. Sci. 2000.

Scientific Work: Ortholithiation reactions: Studies with respect to both mechanism and synthetic utility. Newer, shorter and more efficient methods for the synthesis of several naturally occurring compounds, having heterocyclic systems, as in isocoumarins, furoquinolines, benzophenanthridines, lignan lactones, not readily synthesized by other methods, were developed. An important mechanistic study disclosed that in the lithiation reactions lithium-halogen exchange could be faster than lithium-acidic hydrogen (deuterium) exchange. Natural product chemistry: The structures of carpaine and ψ-carpaine (piperidino-lactone alkaloids) from *Carica papaya*; nimbin and nimonol (tetranor-triterpenoids) from *Azadirachta indica*, and mahanimbine and koenimbine (carbazole alkaloids) from *Murraya koeinigii* were elucidated. Other important contributions: Mechanistic studies on the acylation of the dilithio salts of β-keto esters; construction of the C-ring of the A-aromatic steroidal hormones (equilenin and isoequilenin) using pericyclic reactions; syntheses of staganone, an anticancer compound, using radical-mediated reactions, and cordrastine, cherylline, latifine, anibine, shihunine and catalpalactone; synthesis of the spiro-structure present in fredericamycin, another anticancer compound; new and efficient synthesis of pyridinocarbazole alkaloids.

Important Publications: **(1)** Alkaloids of *Murraya koenigii Indian J. Chem.* (1970) **8**, 473; (1975) **13**, 993. **(2)** Structure of nimbin (1964) *Chem. and Industry* 322; (1964) *Ind. J. Chem.* **2**, 108. **(3)** Structure of nimonol from fresh whole green leaves of *Azadirachta indica* (1997) *Phytochemistry* **45**, 807. **(4)** A novel observation on the lithiation of 2-iodo-3-hydroxymethyl quinoline (1985) *J. Chem. Soc. Commun.* 1368; (1990) *J. Am. Chem. Soc.* **112**, 4431. **(5)** The mechanism of acylation of the dilithium-salts of β-ketoesters; an efficient synthesis of anibine (1983) *J. Org. Chem.* **48**, 3945.

Memberships: Fellow: INSA 87 • Member: MACS, Pune.

Awards & Distinctions: T R Govindachari 60th Birthday Commemoration Award 84 • R C Shaw Memorial Lecture 86 • National Lecturer, UGC 85–86 • S I Perumal Endowment Lecturer 95 • Poona Municipal Corporation Honour for Honoured Citizen of Pune 85 and Teacher of Excellence 87 • Life-Time Achievement of CRSI, Gold Medal 2007.

Narasimhan, Palliakaranai Thirumalai

Elected: 1971
Specialization: Theoretical Chemistry; Magnetic Resonance
Date and Place of Birth: 28 July 1928; Cuddalore, Tamil Nadu
Parent: P T Raghavachariar
Spouse and Children: Leena; one *s*, two *d*, (Vikram, Nalini, Nandini)
Address: 385, S Catalina Avenue, #118, Pasadena, CA 91106, USA
Tel. (+1-626) 395 2863 (O), (+1-626) 795 8537 (R)
email: ptn@caltech.edu

Education: Madras Christian College, Madras: BSc 47, MSc 51; Univ. of Madras: Diploma in German 51; IISc, Bangalore & Univ. of Madras: PhD 55.

Career: IISc, Bangalore: Postdoc Res. 56. Michigan State Univ., USA, Kedzie Chemical Lab.: Instructor, Asst Prof. 57–59; Noyes Chemical Lab.: Asst Prof. 59–60; Columbia Univ., USA: Asst Prof. 60–61; IIT Kanpur: Asst Prof. 62–63, Assoc. Prof. 63–65, Prof. 65–88; Huntington Medical Res. Inst., Pasadena, CA; Beckman Inst., California Inst. of Technol., CA, USA 88–2007.

Scientific Work: Scientific contributions are in the area of chemical physics, especially quantum-mechanical interpretation of magnetic resonance data in relation to molecular structure and properties. Publications deal with problems in NMR, ESR, Overhauser effect, NQR and related areas with focus on chemical bonding, conformation, chemical reactivity as well as electrical and magnetic properties of simple and complex molecules. Recent contributions are in the area of biological applications of magnetic resonance spectroscopy and imaging.

Important Publications: **(1)** Temperature dependance of the dielectric constant of diamond (1955) *Proc. Phys. Soc. (London)* **B68**, 315. **(2)** Relative signs of the mercury-proton spin–spin coupling constants in mercury diethyl (1959) *J. Chem. Phys.* **31**, 1430. **(3)** ^{19}F dynamical nuclear polarization studies on the system CF_2Cl–$CFCl_2$ (1982) *J. Chem. Phys.* **77**, 2697. **(4)** ^{31}P Saturation transfer and phosphocreatine imaging in the monkey brain (1991) *Proc. Natl. Acad. Sci. USA*, **88**, 8372. **(5)** MR imaging with phase-encoding of intermolecular coherences (2001) *J. Magn. Reson.* **152**, 189.

Memberships: INSA 72; NASI.

Awards & Distinctions: S S Bhatnagar Prize 70 • J C Ghosh Memorial Medal 72 • C V Raman Award 80 • R K Asundi Endowment Lecturer 87.

Narasimhan, Ramarathnam

Elected: 2000
Position: Prof., IISc, Bangalore
Specialization: Fracture Mechanics; Computational Solid Mechanics
Date and Place of Birth: 31 May 1960; Madras, Tamil Nadu
Parents: W S Ramarathnam and R Sugantha
Spouse and Children: N Subashini; one *s*, (N Vinayak)
Address: Department of Mechanical Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2293 2959 (O), (080) 2341 9667 (R)
email: narasi@mecheng.iisc.ernet.in

Education: IIT Madras: BTech 82; California Inst. of Tech, USA: MS 83, PhD 86.

Career: Caltech, USA: Res. Fellow 86–87; IIT Bombay: Asst Prof. 87–91; IISc, Bangalore: Asst Prof. 91–95; Assoc. Prof. 95–2001, Prof.: 2001–.

Scientific Work: Worked on several topics pertaining to fracture behaviour of solids such as mixed-mode fracture, dynamic ductile crack initiation, fracture of pressure sensitive materials and amorphous alloys. Numerical simulations have delineated the competition between micro-void coalescence and shear localization near a crack tip under mixed-mode (combined tension and shear) loading. Demonstrated that ductile fracture processes are retarded at high loading rates, particularly in strain-rate sensitive plastic solids. Observed that acute reduction in stress triaxiality can occur near a crack tip in a ductile solid when subjected to stress wave loading. Proposed a simple dynamic crack initiation model based on the above fundamental observation which holds the key for understanding hitherto unexplained phenomena such as increased fracture toughness of engineering materials at high rates of loading. Work revealed several interesting aspects about the mechanics of deformation and fracture of thin, hard films bonded to soft substrates during nanoindentation. Proposed a modified expanding cavity model which can accurately predict the indentation response of pressure sensitive plastic solids such as polymers and metallic glasses. More recently, carried out in-depth studies on fracture response of metallic glasses and ductile single crystals.

Important Publications: **(1)** A finite element analysis of small-scale yielding near a stationary crack under plane stress (1988) *J. Mech. Phys. Solids* **36**, 77–117. **(2)** A finite element analysis of mixed-mode fracture initiation by ductile failure mechanisms (1994) *J. Mech. Phys. Solids* **42**, 953–978. **(3)** A numerical investigation of loss of crack tip constraint in a dynamically loaded ductile specimen (2000) *J. Mech. Phys. Solids* **48**, 1967–1985. **(4)** A numerical fracture analysis of indentation into thin hard films on soft substrates (2003) *Engineering fracture mechanics* **70**, 1323–1338. **(5)** Mode I crack tip fields in amorphous materials with application to metallic glasses (2007) *Acta Mater.* **55**, 6541–6552.

Memberships: Fellow: INSA 2002; INAE • Member: Science and Engineering Research Council of DST 2007–.

Awards & Distinctions: Rudolph Kingslake Prize 88 • S S Bhatnagar Award 99 • Rustom Choksi Award 2004.

Narasimhan, Rangaswamy*

Elected: 1966
Specialization: Computer Sciences
Date and Place of Birth: 17 April 1926; Madras, Tamil Nadu
Parents: K Rangaswamy Iyengar and K Vedammal
Spouse and Children: Sita; one *d* (Tanjam)
Last Address: Computer Maintenance Corporation Limited, Mitra Towers, 10/3 Kasturba Road, Bangalore 560 001, India
***Deceased:** 2 September 2007

Education: Univ. of Madras: BE Hons 47; California Inst. of Technol., USA: MS 49; Indiana Univ., USA: MA 53, PhD 54.

Career: TIFR, Bombay: Res. Fellow 54–61, Assoc. Prof. & Head of Computer Group 64–66, Prof. 66–73, Sr Prof. 73–90, Prof. of Eminence 90; Natl Centre for Software Development and Computing Techniques: Dir 75–85; Univ. of Illinois, USA, Digital Computer Lab.: Vis. Sci. 61–64; CMC, Bangalore: Chmn 76–79, CMC Natl Fellow 92–2007; Natl Centre for Software Technol. Mumbai : Natl Fellow in Information Technol. 90.

Scientific Work: Distinguished for contributions to computer sciences and technology. Played a significant role in the design and construction of TIFRAC, the digital computer at TIFR, then the only computer of the speed and size built in India. Significant research contributions also include the formulation of a linguistic model for pattern analysis and description and the devising the model, of a specific algorithm for processing bubble chamber data. Also interested in applying system-theoretic concepts and techniques to the study of behaviour and behavioural sciences. Worked on visual data-processing, modelling language behaviour, role of science and technology on social change and technology policy issues.

Important Publications: **(1)** *Modelling language behaviour* (1981) Springer. *Software.* **(2)** *industry: current trends and implications for developing countries* (1993) UNIDO, Vienna. **(3)** Artificial intelligence and study of agentive behaviour (2004) Tata McGraw Hill. **(4)** Programming languages and computers: A unified metatheory (1967) in *Advances in computers* Vol. 8, pp. 189–245.

Memberships: Fellow: NASI; INSA 75; Computer Soc. of India • Member: Sci. Advisory Council of Indo-French Centre for the Promotion of Advanced Research.

Awards & Distinctions: Homi Bhabha Award 76 • Padma Shri 76 • Om Prakash Bhasin Foundation Award 88. President: Computer Soc. of India 65–69 • Jawaharlal Nehru Fellowship 71–73. Chmn: Computer Maintenance Corpn 76–79 • Dataquest Life-Time Achievement Award 94.

Narayanan, Appadvedula Lakshmi*

Elected: 1934
Specialization: Optics; Spectroscopy
Date and Place of Birth: July 1890; Konaseema, E Godavari, Andhra Pradesh
Parents: Appadvedula Vyasulu and Mahalakshmi
Spouse and Children: Seshamma; three *s*, four *d*
Last Address: Andhra University, College of Science and Technology, Visakhapatnam 530 003, India
***Deceased:** 7 March 1973

Education: Government Arts College, Rajahmundry: BA 12; Univ. of Madras: MA 14, DSc 24.

Career: Maharaja's College, Vizianagaram: Lecturer in Physics 14–29, Principal 47–57; Solar Phys. Observatory, Kodaikanal: Asst Dir 29–36, Dir 36–47; Andhra Univ.: Vice Chancellor 61–66.

Scientific Work: Did own glass-blowing for making discharge tubes for gases. Purchased a single-stage vacuum pump and a mercury diffusion pump for a high vacuum necessary for several experiments. For exciting arc-spectra, used a dynamo coupled with a set of batteries necessary for DC. Used an induction coil for spark spectra requiring high voltage of about 15000 volts, Thus, resourcefulness helped establish a research laboratory single-handedly and produce original work of high order. Conducted research in physics by single-handedly constructing the special Schumann photographic plates and later equipped laboratory with the components necessary for the study of visible, ultraviolet and infrared spectra.

Memberships: Fellow: London Inst. of Physics; INSA 35.

Awards & Distinctions: Maharaja of Travancore Curzon Memorial Prize.

Narayana, Nuggehalli*

Elected: 1935
Specialization: Agriculture; Biochemistry
Date and Place of Birth: 27 June 1902; Bangalore
Parents: Narasimha Iyengar and Rukkammal
Spouse and Children: Sreerangamma; one *s*, two *d*
Last Address: Mitrananda, 61 First Main Road, Seshadripuram, Bangalore 560 020, India
***Deceased:** 16 March 1976

Education: BSc, MSc; IISc, Bangalore: AIISc; Univ. of Bombay: PhD.

Career: G S Medical College, Bombay, Dept of Biochem.; B J Med. College, Poona, Dept of Biochem., Agri. College, Poona: Agricultural Chemist to Govt of Bombay State; College of Agriculture, Dharwar; Agri. College, Parbani: Principal.

Scientific Work: Coauthored in the late 1920s the first paper from India on microdetermination of proteins in biological material in the *Biochemical Journal*. In the capacity as agricultural chemist, introduced biochemical methodology into plant breeding, plant physiology, plant pathology and dairy science in the Agriculture College, Poona. Was instrumental in the introduction of biochemistry as a discipline for masters and doctoral programmes at the University of Poona.

Memberships: Maharashtra Assn for the Cultivation of Sci., Poona.

Narayanamurti, Duraiswami*

Elected: 1939
Specialization: Biochemistry
Date and Place of Birth: 11 September 1904; Kumbakonam, Tamil Nadu
Parents: K R Duraiswami and Seshamma
Spouse and Children: Janaki; five s
Last Address: 41, Jayamahal Extension, Bangalore 560 046, India
***Deceased:** 9 March 1975

Education: Mysore Univ.: BSc; Bombay Univ.: MSc; Danzig Univ.: Dr Ing.

Career: Government Quinine Factory, Naduvatum: Manufacturing Chemist 30–31; Forest Res. Inst., Dehradun: Jr Offr to President 31–62; Indian Plywood Industries Res. Inst., Bangalore: Dir 62–69; IISc, Bangalore: Sci. 69–75.

Scientific Work: Carried out research in various aspects of wood technology such as timber physics and seasoning, wood preservation, adhesives, composite wood, building boards, applied mycology, etc.

Memberships: Fellow: INSA 47; Aeronautical Soc. of India.

Narayanamurti, Venkatesh

Elected: 1974
Position: Prof., Harvard Univ., USA
Specialization: Solid State; Low Temperature Physics; Electronic Materials
Date and Place of Birth: 9 September 1939; Bangalore
Parents: Duraiswami Narayanamurti and Janaki
Spouse and Children: Jayalakshmi; two *s*, one *d*
Address: Engineering and Applied Sciences, Harvard University, 107D Pierce Hall, 29, Oxford Street, Cambridge, Massachusetts 02138, USA
Tel. (+1-617) 495 5829 (O), (+1-617) 369 0990 (R)
email: venky@seas.harvard.edu

Education: Univ. of Delhi: BSc 58, MSc 60; Cornell Univ., USA: PhD 65.

Career: Bell Laboratories, USA: Member of Tech. Staff 68–76, Head of Semiconductor Electronics Res. Dept 76–81, Dir of Solid State Electronics Res. Lab. 81–87; Sandia National Labs, USA: Vice-President of Res. 87–91; Univ. of California, USA, College of Engg: Dean 91–98; Harvard Univ.: John and Elisabeth Armstrong Prof. of Engineering and Applied Sci. and Prof. of Physics 98–, Dean of SEAS, 98–2008, Dean of Physical Sci. 2003–06.

Scientific Work: Published extensively in the areas of low temperature physics, superconductivity, semiconductor electronics and photonics. Developed the field of phonon optics – the manipulation of monoenergetic acoustic beams at terahertz frequencies; ballistic electron microscopy of nanostructures.

Memberships: Member: Royal Swedish Acad. of Engg Sci.; US National Acad. of Engg; New York Acad. of Sciences; Sigma Xi • Chmn: American Physical Soc. Subcommittee on Intl Sci. Affairs • Fellow: American Physical Soc; American Assn for the Advancement of Science; IEEE.

Awards & Distinctions: Indian Phys. Assn Physicist of the Year Award (American Chapter) 93.

Narayanan, Chengalur Raman*

Elected: 1977
Specialization: NMR Spectroscopy; Chemistry of Natural Products; Stereochemistry and Conformation
Date and Place of Birth: 17 December 1916; Cherpu, Trichur, Kerala
Parents: Chengalur Krishnan Raman and Mankamma
Spouse and Children: Vilasiny; one *s*, four *d*
Last Address: D/43, No. 3 Aundh Road, Kirkee, Poona 411 003, India
***Deceased:** 15 January 1993

Education: Univ. of Madras: BSc 36, MA 40; Univ. of Saugar, MP: MSc 49; Univ. of Allahabad: PhD 51.

Career: Saugar Univ., MP, Dept of Chem.: Lecturer 51–53; Harvard Univ., USA, Organic Dept: Postdoc Faculty 53–56; Univ. of Glasgow, UK, Organic Dept: Postdoc 56–58; Univ. of Wisconsin, USA: Postdoc 58–59; NCL, Poona:

Sr Sci. Offr 59–76, Emeritus Prof. 77–82; AB Univ., Nigeria, Organic Dept: Head 67–69; Institut de Louis Pasteur, France: Vis. Prof. 73–74; IDRL, Poona: Emeritus Sci. 83–90; Fulbright Scholar at Harvard Univ. 53–55.

Scientific Work: Determined the stereostructure and conformation of complex tetranor triterpenoids and nimbin, nimbinin and vepinin. Found methods to convert aliphatic methyl ethers to the corresponding alcohols and 3, 5 alpha-cyclopropyl steroids to steroidal-5-enes. Discovered simple methods by NMR solvent shifts; to find the stereochemistry of the side chain of gamma-lactones; to distinguish and identify axial and equatorial acids; and to identify a methyl group on a carbon holding a hydroxyl group. Finding that the carbonyl group of labile esters and amides have a preferred conformation and determining those conformations. Similarly assigning preferred conformations to labile primary alcohols, acids, aldehydes and esters in terpenoids.

Narayanan, Ennapada Sundaram(ayyar)*

Elected: 1953
Specialization: Agicultural Science
Date and Place of Birth: 15 February 1904; Palghat, Kerala
Parents: Sundaram Ayyar and Alamelu Ammal
Spouse and Children: Sita; one *s*
Last Address: Sri Girija Shankar Nivas, B-122, Sarvodaya Enclave, Sri Aurobindo Marg, New Delhi 110 017, India
***Deceased:** 23 February 1991

Education: Government Victoria College, Palghat: BA; Univ. of Madras: MA; Univ of London: PhD, DIC.

Career: Imperial Agri. Res. Inst., Bihar: Res. Asst, Second Asst, Entomologist, Biological Control Res. Offr, Parasitologist 30–47; IARI, New Delhi, Dn of Entomology: Head 48–62; Central College of Agri.: Principal; Univ. of Delhi, Faculty of Agri.: Chmn and Dean; Central Sericultural Res. Inst., Mysore: Dir 62–67.

Scientific Work: Studied the practical aspects of modern bee keeping, especially the breeding of queen bees by supersedeary impulse. Carried out a number of experiments in genetics and manipulation of genes, culminating in the evolution of several new races of silkworms with superior commercial characters. Initiated taxonomic research on the neglected *Acarina*.

Memberships: Fellow: INSA 58; Royal Entomological Soc.; Entomological Soc. of India; Indian Standards Institute.

Narayanan, Palamadai Sundaram*

Elected: 1974
Specialization: Laser and Spectroscopy; Crystal Physics; Ferroelectricity
Date of Birth: 1 January 1926
Last Address: Department of Physics, Indian Institute of Science, Bangalore 560 012, India
***Deceased:** 23 October 1994

Education: Madras Univ.: BSc Hons 47, MA 48, MSc 49, PhD 51.

Career: IISc, Bangalore: Res. Asst 50–53, Lecturer 51–63, Asst Prof. 63–67, Assoc. Prof. 67–71, Prof. 71–86, Dean of Sci. Faculty 72–73, Head of Phys. Dept 71–74.

Scientific Work: Worked on Raman spectroscopy of crystals using the resonance radiation of mercury. Experimental studies on the second-order Raman spectra of the alkali halides were of importance in understanding the lattice dynamics in these crystals. Set up various facilities for growing a variety of ferroelectric crystals and studied their dielectric thermal expansion and infrared and Raman spectra as a function of temperature and pressure. Group found interesting correlations between the nature of the hydrogen bonds, the dielectric anomaly and the anisotropy of thermal expansion. Careful studies were made on the effect of deuteration, pressure and radiation damage in the hydrogen bonded ferroelectrics. Studies on laser Raman spectroscopy of various ferroelectric materials provided valuable information on the mechanism of phase transition in these crystals. Made a systematic study of thermally induced degenerate four-wave mixing in dye solutions to study the effect of concentration, the influence of the solvent and its properties and the effect of varying the interaction angle and probe beam intensities on the phase conjugate reflectivities. Studies on Raman-induced phase conjugation were carried out by the group. Was the principal investigator for several projects sponsored by different funding agencies. Set up a laser Raman facility at the IISc, Bangalore, with DST support and carried out research on optical phase conjugation with financial support from the DRDO.

Memberships: Fellow: NASI; Indian Phys. Soc.; Optical Soc. of India.

Narayanaswamy, Sankara*

Elected: 1974
Specialization: Plant Embryology; Cereal Plant Anatomy; Plant Morphogenesis; Regeneration Growth & Differentiation in Plant Tissue Culture
Date and Place of Birth: 2 September 1916; Ottapalam, Kerala
Parents: N Sankara Narayana Iyer and C Anantalakshmi
Spouse and Children: Sarojini Bharathi; two *s*, two *d*
Last Address: 13/2, Flat No. 5, I Floor, Griffith Road, T Nagar, Madras 600 017, India
***Deceased:** 13 May 1997

Education: Mysore Univ.: BSc Hons 37: Madras Univ.: MSc 39; Delhi Univ.: PhD 53.

Career: Univ. of Michigan, USA: Fullbright Fellow 53–55; Sugarcane Breeding Inst., Coimbatore: 37–39; Inst. of Plant Industry, Indore 40–41; Dept of Agri., Baroda: 41–45; Dungar College, Bikaner, Dept of Botany: Lecturer 45–46; Maharaja's College, Jaipur 46–49; Univ. of Delhi: Asst Prof. 49–58; Sardar Patel Univ., Anand: Reader & Head 58–60; Univ. of Sorbonne, France: Res. Sci. 62–64; BARC, Bombay, Biology Dn: Head of Plant Morphogenesis & Tissue Culture Section 61–76; Indian Inst. of Horticulture, Bangalore, and Pachaiyappa's College, Madras: Sr Sci. 77–81; Fredrick Inst. of Plant Pathology & Toxicology, Madras: Vis. Sci. 83–85.

Scientific Work: The mechanism of chromosome doubling in crosses between *Saccharum officinarum* and *S. spontaneum* leading to triploid progenies was unravelled as due to fusion of megaspores leading to the development of 2*n* embryo sacs in which the diploid egg cells are fertilized by *n* pollen. Parthenogenetic development of the egg cell was witnessed in the orchid *Spiranthes australis*. Embryogenesis was studied in several grasses such as *Panicum* and several new features of interest were recorded. Experimental androgenesis in *Datura metel, Atropa* and *Capsicum* showed that the progenies could be classified into haploid, diploid and triploid and a few were pentaploid. Sex reversal was witnessed in several plant species such as castor, *Acalypha*, etc., by spray application of auxins. Somatic embryogenesis was observed in *Solanum* sp. *in vitro* subjected to various growth hormones. Interesting morphogenetic variations were recorded when gemmae and thalli of some liverworts and mosses were subjected to various auxins and surgical mutilations. Micropropagation by apical meristem culture *in vitro* was successful in a number of plants. Biosynthetic potential of medicinal plant tissue cultures of *Datura, Cicer, Tylophora* and others was explored.

Memberships: Fellow: Madras Sc. Foundation.

Narendran, Thekke Curuppathe

Elected: 2000
Position: Prof. Emeritus, Univ of Calicut
Specialization: Systematic Entomology; Parasitic Hymenoptera and Biocontrol; Chalcidology
Date and Place of Birth: 24 January 1944; Thrissur, Kerala
Parents: C Ramanuja Menon and Swarnam R
Spouse and Children: Mangala Narendran; two *s* (Rajeev, Ranjit)
Address: Department of Zoology, University of Calicut, Calicut 673 635, India
Tel. (0494) 240 1144/419 (O), (0494) 240 0302 (R), Mobile: 94476 26016
email: drtcnarendran@yahoo.com

Education: Kerala Univ.: BSc 67; Agra Univ.: MSc 68; Calicut Univ.: PhD 75.

Career: Univ. of Calicut: Res. Offr 69–72, Res. Asst 72–75, Lecturer 75–82, Reader 82–88, Prof. 88–2004, Prof. Emeritus 2004–; Vis. Sci.: USA 86 (Smithsonian Fellow), UK 80 (Royal Soc. & Nuffield Foundation Grant), 88 (Ernst Mayr Grant).

Scientific Work: Research contributions have been instrumental in our appreciation of the faunal diversity of Hymenoptera not only of Indian subcontinent but also of other parts of the world. Research monographs, Oriental Chalcididae, Torymidae and Eurytomidae of Indian subcontinent and Indo-Australian Ormyridae and over 315 research papers in national and international scientific journals have established 900 new species and over 50 new genera many of them endemic to India. An important contribution to the description of India's faunal biodiversity, a task that has assumed great importance in the context of the International Convention on Biodiversity and India's Biodiversity Act. In addition, work has considerable applied importance. Various species described turned out to be natural enemies of pests of stored rice, bamboos, cherry and other plants of economic importance. These findings are expected to have application not only in India but also in countries such as Thailand, Malaysia, Turkey and Iran. Also made significant contributions to the teaching and development of taxonomy in India. Lifelong work in a relatively remote university has resulted in the training of a large number of taxonomists and in growing interest in taxonomy among Indian biologists.

Important Publications: **(1)** Indian Chalcid wasps of the genus *Dirhinus* parasitic on synanthropes and other Diptera (1981) *Syst. Entomology* (*London*), **6**, 229–251. **(2)** Key to Indian genera of the family Chalcididae (1984) *Entomophaga* (Paris) **29**, 4, 431–438. **(3)** A new species of *Tetramesa walker* associated with Bamboo in West Malaysia (1995) *Raffles Bull. Zool.* (*Malaysia*) **43**, 2, 329–336. **(4)** A new species of *Eurytoma illiger* parasitic on *Scolytus rugulosus* Ratzeburg in Turkey (1995) *Turk. Entomol. Derg* (*Turkey*) **19**, 2, 81–86. **(5)** Chalcididae from rice stores in Thailand with descriptions of two new species (2004) *Entomol. Sci.* (*Japan*) **7**, 31–38.

Memberships: Founder Fellow: Entomology Acad. of India.

Awards & Distinctions: Certificate of Appreciation, US Dept of Agri. 88 • Janaki Ammal National Award for Taxonomy 2004 • Swadeshi Sci. Puraskar 2008.

Narlikar, Anant Vishnu

Elected: 1988
Position: INSA Sr Sci. and Visiting Fellow, UDCSR, Indore
Specialization: Superconductivity; Low Temperature Physics; STM and Related Techniques
Date and Place of Birth: 31 March 1940; Kolhapur, Maharashtra
Parents: Vishnu Vasudeva Narlikar and Sumati
Spouse and Children: Aruna; one *d*
Address: UGC-DAE Consortium for Scientific Research, University Campus,
Khandwa Road, Indore 452 017, India
Tel. (0731) 246 3913 (O), (0731) 246 4582 (R)
email: narlikar@yahoo.com

Education: BHU, Varanasi: BSc 58, MSc 60; Cambridge Univ., UK: PhD 65, ScD 94.

Career: Bowland College, Lancaster, UK: Res. Assoc. and Tutor 65–68; Univ. of Geneva, Switzerland: Sr Res. Collaborator 68–69; Shivaji Univ., Kolhapur: Prof. and Head of Phys. 69–72; TIFR, Bombay: Reader, School of Physics 72–73; NPL, New Delhi: Asst Dir, Dy Dir, Dir Grade Sci. 73–2000; After 2000, Lady Davis Vis. Prof. in Israel, Wihuri Vis. Prof. in Finland, Peterhouse Sr Vis. Fellow at Cambridge UK, Sr Vis. Fellow in Brazil and Vis. Prof. at Peking Univ. in China; UDCSR, Indore: INSA Sr Sci.

Scientific Work: Demonstrated importance of non-uniform dislocations in causing vortex pinning in conventional Nb-based superconductors. Worked on the growth and ordering of A–15 layers by solid-state reactions, conduction-electron spin resonance, substitutional effects in high T_c cuprate systems, and scanning/tunnelling microscopy of fullerenes, cuprates and other frontal materials.

Important Publications: **(1)** High resolution studies of C–60 films by scanning tunnelling microscopy (1994) *Philos. Trans. R. Soc. (London)* **346**, 307. **(2)** Observational studies of defect carbon cage structures of C–60 by high resolution scanning tunnelling microscopy (1994) *Proc. R. Soc. London*, **A444**, 325. **(3)** Frontiers in superconducting materials (2005) p. xxxi + 1103, Springer. **(4)** Frontiers in magnetic materials (2005) p. xxiv + 799, Springer. **(5)** Studies of high temperature superconductors (1989 to 2006) 1–50, Nova Sci. Publishers, NY.

Memberships: Fellow: NASI 90; INSA 93; Indian Cryogenics Council • Full Fellow: International Acad. of Electro Technical Sciences, Moscow, Russia • Member: Asia Pacific Acad. of Materials.

Awards & Distinctions: Tait Memorial Prize for Physics, Peterhouse, Cambridge University 63 • A N Chatterjee Gold Medal, Indian Cryogenics Council 77 • Materials Res. Soc. of India Award 91 • C V Raman Award 94 • H J Bhabha Medal 96 • Fie Foundation Award 2000.

Narlikar, Jayant Vishnu

Elected: 1974
Position: Emeritus Prof., IUCAA, Pune
Specialization: Cosmology; General Relativity; Gravitation
Date and Place of Birth: 19 July 1938; Kolhapur, Maharashtra
Parents: Vishnu Vasudeva Narlikar and Sumati
Spouse and Children: Mangala; three *d*, (Geeta, Girija, Leelavati)
Address: Inter-University Centre for Astronomy & Astrophysics, Ganeshkhind, Pune 411 007, India
Tel. (020) 2560 4100/357 (O), (020) 2588 1150 (R), Mobile: 98505 88922
email: jayant@iucaa.ernet.in, jvn@iucaa.ernet.in; URL: http://www.iucaa.ernet.in

Education: BHU: BSc 57; Cambridge Univ.: PhD 63, MA 64, ScD 76.

Career: Cambridge Univ: Postdoc Res. 63; Fitzwilliam College, UK: Dir of Studies in Maths 62–63; King's College, UK: Berry-Ramsey Fellow 63–67, Sr Res. Fellow 68–72; Cambridge Univ., UK, Inst. of Theoretical Astronomy: Staff Member 66–72; TIFR: Prof. 72–83, Sr Prof. 83–89, Hon. Prof. 89–92; Jawaharlal Nehru Fellow 73–75; Inter-Univ. Centre for Astronomy and Astrophys., Pune: Dir 88–2003; DAE Hon. Prof. 98–2003; Emeritus Prof. 2003–.

Scientific Work: Early work provided a scalar field formulation of the steady-state universe. Along with others revived that work as a serious alternative to the hot big bang cosmology. With Hoyle, has a programme of describing action-at-a-distance electrodynamics, quantum as well as classical, and have extended the ideas to propose a Machian theory of gravity. Stretched this theory to account for the observed red-shift anomalies in quasars and galaxies. Has done pioneering work in quantizing the conformal degree of freedom and using the framework to construct non-singular models in quantum cosmology.

Important Publications: **(1)** *An introduction to cosmology* (2001) Third Ed., Cambridge. **(2)** *The lighter side of gravity* (1996) Second Ed., Cambridge. **(3)** *Seven wonders of the cosmos* (1999) Cambridge . **(4)** *Akashashi Jadale Nate* (1998) (in Marathi) Rajhans. **(5)** *The scientific edge* (2003) Penguin.

Memberships: Fellow: INSA 77; NASI 88; TWAS 89; Cambridge Philosophical Soc. 63; London Royal Astronomical Soc. 63–83 • Member: Indian Physics Assn • President: Indian Assn for General Relativity and Gravitation 82–84; Astronomical Soc. of India 82–85, Cosmology Commission of the International Astronomical Union 94–97.

Awards & Distinctions: Padma Bhushan 65 • S S Bhatnagar Award 78 • Rashtrabhushan Award 83, FIE Foundation 81 • Rathindra Award of Visvabharati 85 • INSA Vainu Bappu Memorial Award 88 • Gogate Award 92 • M P Birla Award 93 • UNESCO Kalinga Award 96 • Padma Vibhushan 04 • Janssen Award, French Astronomical Soc. 2004 • Member: SAC to the Prime Minister 86–90.

Narlikar, Vishnu Vasudeva*

Elected: 1935
Specialization: General Relativity; Unified Field Theories
Date and Place of Birth: 26 September 1908; Kolhapur, Maharashtra
Parents: Vasudeo Shastri and Kashibai Sapre
Spouse and Children: Krishna Huzurbazar (Sumati); two *s*
Last Address: Inter-University Centre for Astronomy & Astrophysics, Post Bag No. 4, Ganeshkhind, Pune 440 007, India
***Deceased:** 1 April 1991

Education: Univ. of Bombay: BSc Hons 28; Univ. of Cambridge: Maths Tripos 30.

Career: Elphinstone College: 25–28; Royal Inst of Sci. 28–30; Univ of Cambridge, UK: Isaac Newton Student 30–32; BHU Univ., Dept of Maths: Prof. and Head 32–60, Pro-Vice Chancellor 51–55; Central Hindu College: Principal 58–60; Rajasthan Public Service Commission: Chmn 60–66; Univ. of Poona: Lokmanya Tilak Prof. of Applied Maths 66–73.

Scientific Work: Pioneer relativist in India. Established the first formal school of relativity in the country. At Varanasi, studied exact solutions of Einstein's equations of general relativity, including the now well-known radiating star solution by P C Vaidya; solutions of the unified field equations of Einstein and Schrödinger, equations of motion as derived from field equations, the fourteen scalar differential invariants of Riemannian metric and their physical significance. Along with Karmarkar, explicitly constructed these 14 invariants.

Memberships: Fellow: INSA 39 • President: Calcutta Maths Soc., Indian Maths Soc.

Awards & Distinctions: Raleigh Prize, Cambridge 32.

Nasipuri, Dhanonjoy

Elected: 1976
Specialization: Synthetic and Mechanistic Organic Chemistry; Stereochemistry
Date and Place of Birth: 1 April 1925; Shitalgram, West Bengal
Parents: B B Nasipuri and R B Nasipuri
Spouse and Children: Namita; two *s*, one *d*
Address: Suite No. 46, Surendranath Housing Society, 238, Manicktala Main Road, Kolkata 700 054, India
Tel. (033) 2352 1061 (R)

Education: Calcutta Univ.: BSc 46, MSc 48, PhD 55, DSc 63.

Career: Calcutta Univ., Dept of Chem.: Lecturer 50–62, Reader 62–69; IIT Kharagpur: Prof. 69–85, Chmn; IICB, Calcutta: Sr Sci. 85–86; CSIR: Emeritus Sci. 89; INSA: Sr Sci. 90–93.

Scientific Work: Developed new reagents for diastereoselective reduction of cyclic ketones almost exclusively to the less stable epimeric alcohols and also new chiral reagents for enantioselective reduction of prochiral ketones and aldehydes with moderate to high enantiomeric excess. Determined the energy barrier to rotation around aryl-carbon and aryl-nitrogen bonds by dynamic nuclear magnetic resonance spectroscopy. Developed a new biomimetic method for the synthesis of naturally occurring diterpenes and sesquiterpenes such as sugiyl methyl ether, nimbiyl methyl ether, xanthoperol, pallescensin A and also rationalized the mechanism and stereochemistry of arylethylcyclohexyl cations.

Memberships: Fellow: Indian Chemical Soc.; London R. Soc. of Chem.; INSA 78; New York Acad. of Sci. • President: Indian Chemical Soc.

Awards and Distinctions: Basudev Mem. Gold Medal.

Natarajan, C V*

Elected: 1934
Specialization: Anatomy
Date and Place of Birth: 26 April 1899; Srimusham, Old Madras, Presidency
Parents: Venkataramana Iyer and Janaki Ambal
Spouse and Children: Saraswathi; one *s*, one *d*
Last Address: Public Health Institute, Seshadri Road, Bangalore 560 009, India
***Deceased:** 11 November 1964

Education: BSc 20; Madras Medical College: MBBS 25.

Career: John Hopkins Univ., Baltimore: Virologist; Prof. of Anatomy; Chemical Examiner: Health Officer-in-charge of Cholera; Typhoid, etc.; Public Health & Vaccine Institutes: Dir; Co-ordinator chlorination Project for Tippagondanahalli water supply project & under-ground sewerage.

Scientific Work: Pioneer in the world's first government sponsored family welfare scheme; investigator of bio-chemistry of natural purification of flowing sewage; control of malaria and filaria vectors; investigator of anemia in rural women. Involved in physical aspects of classification of viruses; was consultant to government on the expansion and maintenance of underground sewage system of Bangalore and supply of water purified to meet bacteriological standards.

Memberships: Fellow: Royal Inst. of Chemistry, UK • Secretary: Bangalore Gayana Samaja.

Awards & Distinctions: Rockefeller Foundation Fellowship 27.

Natarajan, Kootalai Ananthaiyer

Elected: 1993
Position: Hon. Prof. & Raja Ramanna Fellow, IISc, Bangalore
Specialization: Mineral Processing; Hydrometallurgy; Biomineral Technology; Corrosion Engineering
Date and Place of Birth: 15 June 1942; Palghat, Kerala
Parents: K V Anantha Iyer and P V Lakshmi
Spouse and Children: S Skandamani; two *s* (Anand, Arvind)
Address: Department of Materials Engineering, Indian Institute of Science, Bangalore 560 012, India
Tel. (080) 2360 0120, 2293 2679 (O), (080) 2364 6499 (R), Mobile: 98802 50091
email: kan@materials.iisc.ernet.in

Education: Univ. of Kerala: BSc 62; IISc, Bangalore: BE 64, DSc 92; Univ. of Minnesota, USA: MS 69, PhD 71.

Career: IIT Madras: Sr Tech. Asst in Metallurgy 64–65, Assoc. Lecturer in Metallurgy 65–67; Univ. of Minnesota, USA, Mineral Resources Res. Centre: Res. Asst 67–72, Res. Assoc. 80–83; Regional Engg College, Tiruchirapalli: Asst Prof. in Metallurgy 72–73; Karnataka Regional Engg College, Surathkal: Asst Prof. 73–80; IISc, Bangalore: Prof. of Metallurgy 83–2004; Hon. Prof. of Ramanna Fellow 2004–.

Scientific Work: Pioneered and established an outstanding school of research on the use of bacteria and fungi for the processing of industrially important minerals. The multi-disciplinary strategy has involved development of cultures and metal-tolerant strains, studies on surface, electro-chemical and biological aspects of bio-leaching and bio-flotation, and process modelling to elucidate reaction-mechanisms, improve reaction, kinetics and achieve selectivity. The novel concept of electrobioleaching applicable to complex ores, bacterial control in the flotation of lead-zinc sulphides and biotreatment of refractory gold ores and cyanide effluents for recovering gold are impressive achievements from the work.

Important Publications: **(1)** Surface chemical and flotation behaviour of chalcopyrite and pyrite in the presence of *Acidithiobacillus thiooxidans* (2006) *Hydrometallurgy* **83**, 146–152. **(2)** Biomeneralisation of manganese on titanium surfaces exposed to seawater (2008) *J. Biofouling* **24**, 4, 275–282. **(3)** Role of mineral specific bacterial proteins in selective flocculation and flotation (2008) *Int. J. Miner. Process* **88**, 53–58. **(4)** Biological aspects of arsenic speciation and remediation (2008) *Hydrometallurgy,* Proc. SME, Littleton, Colorado, pp. 108–116. **(5)** Microbial aspects of acid mine drainage and its bioremediation (2008) *Trans. Nonferrous Met. Soc. China* **18**, 1352–1360.

Memberships: Fellow: NASI 2000; INAE; IIM.

Awards & Distinctions: Kamani Gold Medal • National Metallurgists, Day Award 85 • Hindustan Zinc Gold Medal • MRSI Medal • National Mineral Award • Alumni Award for Excellence in Research (Engineering), IISc • Mineral Beneficiation Award, IIME • Biotech Product and Process Development & Commercialization Award • Natl Metallurgist Award 2006.

Natarajan, Paramasivam

Elected: 1987
Position: Prof Raja Ramanna Fellow and Emeritus Prof., Univ. of Madras, Chennai
Specialization: Inorganic Photochemistry; Laser Flash Photolysis ;Chemical Conversion of Solar Energy
Date and Place of Birth: 17 September 1940; Madras
Parents: S K Paramasivam and Chellammal
Spouse and Children: Sivabagyam; two *d* (Shiva Sukanthi, Shakthi)
Address: National Centre for Ultrafast Processes, University of Madras,
Taramani Campus, Chennai 600 113, India
Tel. (044) 2454 0962, (044) 2454 7192 (O), (044) 2447 2332 (R)
email: pnatrajan@hotmail.com

Education: Univ. of Madras: BSc 59; BHU, Varanasi: MSc 63; Univ. of Southern California: PhD 71.

Career: Govt Arts College, Madras: 59–61; NGM College, Pollachi: Lecturer 63–64; BHU, Varanasi: CSIR Jr Res. Fellow 64–65; JIPMER, Pondicherry: 65–66; Wayne State Univ.: Postdoc Res. 71; Univ. of Madras, Dept Physical Chem: 73–76; Univ. of Madras Post-Graduate Centre, Tiruchirapalli: Prof. and Head of Dept of Chem. 77–82; Dept of Chem., Bharathidasan Univ., Tiruchirapalli 82; Dept of Inorganic Chem.: Prof. and Head 82–2001; Univ. of Notre Dame, USA, Radiation Lab.: Vis. Prof. 79–80, 87–88; Inst. de Chimie Physique Ecole Polytechnique Federale, Switzerland: Vis. Sci. 83; Central Salt & Marine Chemicals Res. Inst., Bhavnagar: Dir 91– 97 (on lien from Univ. of Madras): Natl Centre for Ultrafast Processes, Univ. of Madras: Founder-Dir 97–2006.

Scientific Work: Studied various aspects of excited state chemistry of metal complexes (I) medium effect on the excited state reactivity; photosensitization processes leading to electron transfer and energy transfer pathways; electron transfer processes by excited states, free radicals and unstable metal ions; photopolymerization by new metal complex initiators; applications of the metal complexes in the chemical conversion of solar energy; and use of Marcus theory for explaining photoinduced electron transfer reactions.

Important Publications: **(1)** Photosensitization of oxygen-bridged dicobalt(III) cations by the tris(2,2′-bipyridine) ruthenium(II) excited state. Luminescence quenching and product quantum yields (1980) *Inorg. Chem.* **19**, 1714. **(2)** Photovoltaic conversion by macromolecular thionine films (1981) *Nature (London)* **292**, 224. **(3)** Photochemical reactions of cobalt(II)-amine complexes in non-aqueous solvents: Mechanistic details of the oxygenation reactions of cobalt(II) systems (1986) *Inorg. Chem.* **25**, 3554. **(4)** A new approach to the study of the oxygenation reactions of transition metal complexes. Formation of the μ superoxo cobalt(III) complexes in the oxygenation reactions of the cobalt(III) amines (1992) *J. Am. Chem. Soc.* **114**, 4621. **(5)** Photophysical properties of phenosafranine adsorbed on TiO2 incorporated zeolite-Y (2005) *Micro. Meso. Mater.* **86**, 185.

Memberships: Fellow: IUPAC; American Chemical Soc. • Chmn: Acids, Alkalies and Halides Sectional Committees; Bureau of Indian Standards • Fellow: INSA 88; Tamil Nadu Acad. of Sci.; Soc. of Biosci.; Gujarat Acad. of Sci.

Awards & Distinctions: Sigma Xi 80 • S S Bhatnagar Prize 84 • Tamil Nadu Govt, Best Teacher 84.

Natarajan, Rajagopala*

Elected: 1981
Specialization: Biosystematics and Ecology of Marine Fish and Shell Fish; Marine Microbiology and Marine Biomedical Research; Coastal Ecosystem and Coastal Zone Management
Date and Place of Birth: 9 July 1930; Chidambaram, Tamil Nadu
Parents: P Rajagopalan and Sundarambal
Spouse and Children: Mangalam; two *s*, two *d*
Last Address: M S Swaminathan Research Foundation, 3rd Cross St, Institutional Area, Taramani, Madras 600 113, India
***Deceased:** 2 December 2003

Education: Annamalai Univ.: BSc 50, BSc Hons 52, MA 54, MSc 56, PhD 61.

Career: Annamalai Univ.: Demonstrator in Zoology: 52–53; Min. of Edn, Res. Prog Scheme Res. Fellow: 53–59; Madras Christian College: Lecturer 61–63; Univ. of Michigan, USA: Vis. Faculty 61–68; Annamalai Univ., Centre of Advanced Study in Marine Biology: Prof. & Dir 70–88, Vis. Prof. 88–93; M S Swaminathan Res. Foundation: Emeritus Prof. 94.

Scientific Work: Studied coastal zone ecosystem of a prime nature, covering many aspects like water quality assessment, environmental inventory, pollution monitoring, living resources survey and the systematics, biology and ecology of fin fish and shell fish of the coastal waters. Studies related to Pitchavaram mangroves and their resources covering almost all aspects like water quality, benthic ecology, flora and fauna, microbial ecology, seed resources survey, forest ecology, primary and secondary productivity, heavy metal flux and pollution monitoring.

Memberships: Fellow: ZSI; NASI; Marine Biological Assn of India.

Awards & Distinctions: TNCST Tamil Nadu Sci. Award 94.

Natarajan, Srinivasan

Elected: 2009
Position: Prof., IISc, Bangalore
Specialization: Inorganic Materials Chemistry; Solid State Chemistry
Date and Place of Birth: 27 May 1960; Chidambaram
Parents: R Srinivasan
Spouse and Children: Geetha Chandrasekharan; one *s*
Address: Solid State and Structural Chemistry Unit, Indian Institute of Science, C V Raman Avenue, Bangalore 560 012, India
Tel. (080) 2293 2551 (O), (080) 2341 7591 (R), Mobile: 94489 37430
email: snatarajan@sscu.iisc.ernet.in

Education: MKU: BSc 80, MSc 82, IIT Madras: PhD 90.

Career: Davy Faraday Res. Laboratory, The Royal Institution of Great Britain: Postdoc 90–94; Materials Res. Laboratory, Univ. of California: Postdoc 90–97; JNCASR, Chem. & Phys. of Materials Unit: Asst Prof 97–2001, Assoc. Prof. 2001–04; IISc, Solid State and Structural Chem. Unit: Assoc. Prof. 2004–08, Prof. 2008–

Scientific Work: During the last five years, important contributions have been made in the area of metal-organic framework compounds. Specifically, identification of new intermediates and postulation of general pathways; study of the relative importance of kinetic and thermodynamic factors in the formation of metal-organic framework (MOF) solids; understanding the magnetic interactions and; pioneering the use of MOF for applications in metal-centered luminescence, photocatalysis, and as new low-temperature precursors for the synthesis of fine ceramics. The earlier work on the stabilization of transition metal ions in tetrahedral environment has become a text book example in a classic inorganic chemistry text (*Advanced inorganic chemistry*, VIth Ed., 818, 1999).

Important Publications: **(1)** $[H_3N(CH_2)2NH_3]0.5[Sn_4P_3O_{12}]$: An open-framework Tin(II) phosphate (1997) *Angew. Chem. Int. Ed.* **36**, 978–980. **(2)** Synthesis and structure of a tin(II) phosphatooxalate, $Sn_2(PO_4)(C_2O_4)0.5$ containing one-dimensional tin phosphate chain (1998) *J. Solid State Chem.* **139**, 200–203. **(3)** Synthesis and structures of new pyromellitate coordination polymers with piperazine as a ligand (2004) *Inorg. Chem.* **43**, 198–205. **(4)** Pyridine- and imidazole-dicarboxylates of zinc: Hydrothermal synthesis, structure, and properties (2005) *Eur. J. Inorg. Chem.* 2156–2163. **(5)** Synthesis, structure and luminescent properties of yttrium benzene dicarboxylates with one- and three-dimensional structure (2004) *Dalton Trans.* 2923–2928.

Memberships: Life Member: Materials Research Soc.; Chemical Research Soc.; Indian Crystallographic Assn; International Zeolite Assn • Member: The Royal Soc. of Chemistry, UK.

Awards & Distinctions: B M Birla Prize • MRSI Medal • DST-JSPS Visiting Fellow 2000 • CRSI Medal 2001 • JWT Jones Fellow, Royal Soc. of Chemistry, London 2002.

Nath, Girishwar

Elected: 1981
Specialization: Fluid Mechanics; Magnetohydrodynamics; Turbomachines
Date and Place of Birth: 17 July 1932; Chausa, Bihar
Parents: Kamata Prasad and Sahadei Kuer
Address: c/o S K Sinha, Type IV/17, KNIT Campus, Kamala Nehru Institute of Technology, Sultanpur 228 118, India

Education: Patna Univ.: BSc Hons 51, MSc 54; Tech. Univ., Hungary: Dr Tech. 66; Hungarian Acad. of Sci., Hungary: PhD 66.

Career: Patna Univ., Patna, Dept of Maths: Lecturer 54–68; IISc, Bangalore, Dept of Maths: Asst Prof. 68–75, Assoc. Prof. 75–79, Prof. 79–92.

Scientific Work: Made important contributions in the field of computational fluid dynamics. Work on unsteady boundary layers, hypersonic flow, swirling flow in nozzles and diffusers, porous media and MHD has been widely recognized. Developed several integral and numerical methods for the solutions of nonlinear partial differential equations governing various fluid flows.

Important Publications: **(1)** Natural convection flow in a rotating fluid over a vertical plate embedded in a thermally stratified high porosity medium (2005) *Int. J. Fluid Mech. Res.* **32**, 511–527. **(2)** Transient rotating flow over a moving surface with a magnetic field (2005) *Int. J. Heat Mass Transfer* **48**, 2878–2885. **(3)** Non-uniform mass transfer or wall enthalpy into a compressible flow over a rotating sphere (2007) *Int. J. Heat Mass Transfer* **43**, 1133–1141. **(4)** Unsteady natural convection from a horizontal annulus filled with a porous medium (2008) *Int. J. Heat Mass Tranfer* **51**, 5001–5007. **(5)** Analytical solution of unsteady three dimensional MHD boundary layer flow and heat transfer due to impulsively stretched plane surface, *Commun. Nonlinear Sci. Numer. Simulat.* (in press).

Nayak, Nabeen Chandra

Elected: 1988
Position: Prof., Sr Consultant and Head, Dept of Histopathology, Sri Gangaram Hospital, New Delhi
Specialization: Pathology; Oncology; Liver Diseases
Date and Place of Birth: 31 January 1931; Puri, Orissa
Parents: B Nayak
Spouse and Children: Vijoy Laxmi; two *d*
Address: Department of Histopathology, Sri Gangaram Hospital, Rajinder Nagar, New Delhi 110 060, India
Tel. (011) 2656 8171 (O), Mobile: 98100 91238
email: nayakmb@vsnl.com, dr_ncnayak@yahoo.com

Education: Utkal Univ.: MBBS 52; Lucknow Univ.: MD 56.

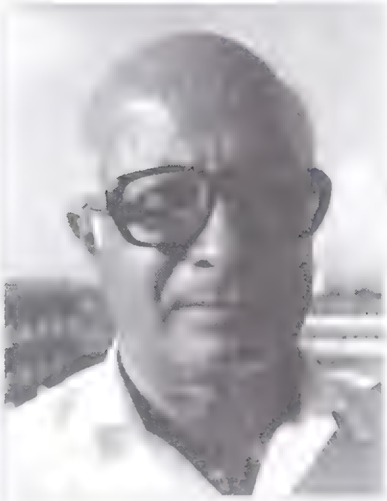
Career: Medical College, Cuttack, Dept of Pathology: Demonstrator 55–57, Asst Prof. 57–61; AIIMS, New Delhi, Dept of Pathology: Asst Prof. 62–66, Assoc. Prof. 66–72, Prof. 72–93; Kuwait Univ., Kuwait, Dept of Pathology: Prof. & Chmn 94.

Scientific Work: Elucidated the pathophysiology and etiology of several liver disorders, particularly those common in India. Work has shed light on the evolution of the pulmonary tuberculosis lesion and on the pathology of high-altitude sickness. Work on the Indian childhood cirrhosis has helped define precise criteria for its tissue diagnosis. Has also underscored the exclusion of hepatitis B virus in the cause of the disease and the secondary role of excess copper. Was among the first to describe new immunohistochemical techniques to identify hepatitis B virus antigens and the carcino-embryonal protein, alpha-feto protein, in tissues.

Memberships: Fellow: INSA 88; NAMS; Royal College Pathology • Member: WHO Expert Group on Classification & Nomenclature of Cirrhosis of the Liver; ICMR Scientific Advisory Board; ICAR Scientific Panel on Animal Husbandry.

Awards & Distinctions: ICMR Basanti Devi Amir Chand Award 80 • Medical Council of India Hari Om Ashram Award 80 • A K Banerjee Award 80.

Nayar, Bala Krishnan



Elected: 1975
Specialization: Pteridology; Anatomy; Palynology; Evolution
Date and Place of Birth: 19 September 1927; Aymanam, Kottayam, Kerala
Parents: T Kesava Panicker and Kalyani Amma
Spouse and Children: Sharada Devi; two *s*, one *d* (Ajith, Ranjith, Jyothi)
Address: 20/601, Panniyankara, Kallai P.O., Calicut 673 003, India
Tel. (0495) 232 3518 (R), Mobile: 98470 02562
email: bknayar27@yahoo.com

Education: Kerala Univ.: BSc 47, MSc 50; Gauhati Univ., Assam: DPhil 58.

Career: Univ. of Gauhati: Lecturer 50–55; Natl Botanical Res. Inst. Lucknow: Sci. 55–70; Univ. of Calicut, Dept of Botany: Prof. & Head and Dean of Faculty of Sci. 70–87.

Scientific Work: Elucidated the basic nature of the cormophytic plant body, showing that a phyllorhize is fundamental in evolutionary history, based on his extensive studies on gametophytic generation, spore morphology and vascular morphology of pteridophyta which are the earliest and thus the most primitive vascular plants. Elucidated, and based on morphological evidence traced the step by step evolution of higher plants from alga-like ancestors, disproving earlier hypotheses and without recourse to hypothetical intermediate life forms. Classified and described for the first time, types of spore-germination and patterns of development of gametophytes of pteridophytes, and enunciated their evolutionary trends. Described and interpreted gametophyte morphology of over 2000 taxa and palynology of 3500 taxa of pteriodophytes and elucidated the step-by-step evolution of gametophye generation of this most primitive group of vascular plants. Proved through extensive study of shoot-apex activity, organogenesis, and process of vascular differentiation, that the age-old axial theory and stelar theory (including hypothesis of stelar evolution) which currently form the foundation of taxonomy as well as phylogenetic/evolutionary interpretations of vascular plants are wrong. Propounded, as alternative, the phyllorhize theory to interpret origin and evolution of cormophytic plant body of vascular plants, necessitating extensive re-interpretation of taxonomy and phylogeny of all vascular plants. Compiled and published *Fern Flora of Malabar* as the first step for comprehensive revision of *Fern Flora of India* and to serve as a model for same.

Important Publications: **(1)** Gametophytes of homosporous ferns, *Bot. Rev.* **37**, 265–396. **(2)** Missing links in the evolution of vascular plants, *Curr. Sci.* **51**, 717–722. **(3)** In support of phyllorhize, *Curr. Sci.* **54**, 1025–1036. **(4)** Evolution of a cormophytic plant body in lower vascular plants, *Palaeobotanist* **41**, 75–86. **(5)** Quest for the primitive vascular plant, *Indian Fern. J.* **12**, 1–19.

Memberships: Fellow: Linnaean Soc. of London; Indian Fern Soc.

Awards & Distinctions: Indian Fern Society, Distinguished Fellowship 92 • Indian Fern Soc. Intl Pteridological Congress, Lifetime Achievement Award 2008.

Nayar, Krishnapillai Karunakaran*

Elected: 1975
Specialization: Endocrinology; Entomology; Cooperative Oncology
Date and Place of Birth: 12 June 1920; Kottarakara, Kerala
Parents: K P Krishna Pillai and N Lakshmikutty Amma
Spouse and Children: Sarada; three *s*, one *d*
Last Address: Department of Zoology, Kerala University, Trivandrum, India
***Deceased:** 26 June 1975

Education: Univ. of Travancore, Trivandrum: BSc 39, PhD 47; Presidency College, Madras: BSc Hons 41, MA 43.

Career: Univ. of Travancore: Res. Asst in Entomology, Lecturer 45; Chittoor Govt College, Univ. of Kerala: Lecturer; Palghat Govt College: Reader in Zoology; Calicut Govt College: Prof. and Head of Zoology Dept 68–75; Rothamsted Experimental Station, UK: Guest Res. Worker 53–54; Univ. of East Anglia, England, School of Biological Sci.: Commonwealth Vis. Prof. 68–69.

Scientific Work: Made a survey of the gall insects of Travancore and made some important contributions to the knowledge about this group of insects. Subsequently was fascinated by the endocrine mechanism of insects and made substantial contributions. Emphasis was on experimental work throughout, and as a result of the pioneering work, made significant contributions in this field, especially with regard to endocrine control of insect metamorphosis and reproduction. Elucidated endocrine mechanisms underlying reproduction, including oviposition in *Iphita* and its metamorphosis. Also worked on comparative aspects of regeneration and carcinogenesis.

Memberships: Fellow: INSA 72.

Nayudamma, Yelavarthy*

Elected: 1963
Specialization: Leather Technology; Chemistry; Biochemistry; Agroanimal and Forest-Based Industrial Research; Science Policy and Planning; Science Administration
Date and Place of Birth: 10 September 1922; Yelavarthy, Guntur, Andhra Pradesh
Parents: Yelavarthy Anjaiah and Raghavamma
Spouse and Children: Seetha Lakshmi (deceased); Pavana Bai; two *s*, one *d*
Last Address: Central Leather Research Institute, Adyar, Madras 600 020, India
***Deceased:** 23 June 1985

Education: BHU: BSc 42; Lehigh Univ.: PhD 51.

Career: CLRI, Madras: Sr Sci. Offr 51–58, Dir 58–71; CSIR, New Delhi: Dir General 71–77, Distinguished Sci. 77–81, 82–84; Jawaharlal Nehru Univ., New Delhi: Vice Chancellor 81–82; Univ. of Madras: Hon. Prof. of Leather Technol. 56–85.

Scientific Work: Pioneering work in leather technology related to dimensional stability of collagen and leather, mechanism of mineral and combination tannages, further insight into metal–protein interactions leading to crosslinking phenomena in collagen, grafting of acrylic monomers onto collagen and development and delivery of a number of viable and successful technologies for the manufacture of finished leather. Helped establish the largest of leather research institutes in the world at Madras and sought both rapid development of the industry and the traditional society engaged in the Indian leather sector in sixties. Spearheaded the promotion of vibrant interaction of academy–institute–industry linkages. Contributions have been in the areas of structural reforms in technical education, industrial research, designing of alternative models for rural and integrated development, alternative sources of energy, promotion of industrial application of research and sensitization of institutions and the Governments in developing countries towards structural changes to meet technological advances.

Important Publications: **(1)** Conductometry in leather research (1956) *Bull. CLRI* **2**, 360–366. **(2)** Physical and chemical characteristics of some Indian leathers (1956) *Bull. CLRI* **2**, 389–396. **(3)** Indian leather industry: A view of the future (1984) *Leather Sci.* **31**, 80.

Memberships: Fellow: INSA 75; World Acad. of Arts and Science.

Awards & Distinctions: INSA ICG Naik Gold Medal 65 • Padma Shri 71 • NRDC Awards • Rajalakshmi Award 83 • Telugu Assn of North America Award 84.

Neelakantam, Kalla*

Elected: 1940
Specialization: Organic Chemistry; Analytical Chemistry; Organic Reagents in Inorganic Chemical Analysis
Date and Place of Birth: 18 December 1911; Jeypore, Koraput, Orissa
Children: four *s*, two *d*
Last Address: 11/7, Bhupati Street, Jeypore P. O., Koraput District, Orissa 764 001, India
***Deceased:** 28 August 1985

Education: Andhra Univ: BA 30, PhD 38; Univ. of Madras: MA 33; Univ of London: DIC 38.

Career: Presidency College, Madras: Demonstrator in Chem. 30–33; Andhra Univ., Waltair, Dept of Chem.: Lecturer 34–42, Reader 42–49, Prof. 49–52; Annamalai Univ.: Addl Prof. of Chem. 53; Defence Sci. Org: Sr Sci. Offr 54–55; S V Univ., Tirupati, Dept of Chem.: Reader 55–57, Prof. 57–71, Principal 65–71.

Scientific Work: Research in development of organic reagents for use in chemical analysis and in the investigation of electrochemical processes.

Newcomb, Clive*

Elected: 1935
Specialization: Surgeon
Date of Birth: 1882
Parents: William Newcomb
Spouse and Children: Doris Emmie Holdsworth; one *s*, one *d*
Last Address: Dudley Cottage, Walberswick, Southwold, Suffolk, UK
***Deceased**

Education: Univ. of Oxford: BA 05, MB, B.Ch 10, DM 19, FRIC 25.

Career: Govt of Madras: Chemical Examiner; Medical College, Madras: Principal. 32; Served European War in Mesopotamic 14–18; Chemical Examiner, Madras 20; Surgeon General, Madras 35–37, Examiner of Medical Stores, India Store Dept 37–45.

Niazi, Iqbal Ahmad

Elected: 1989
Specialization: Developmental Biology of Animals and Regeneration
Date and Place of Birth: 22 August 1928; Amroha, Uttar Pradesh
Parents: M Habibullah and Masroor Fatima
Spouse and Children: Sultana; one *s*, two *d* (Asad, Zeba, Zeenat)
Address: D-2/2276, Vasant Kunj, New Delhi 110 070, India
Tel. (011) 2613 2371 (R), Mobile: 98101 78979
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Education: Aligarh Muslim Univ.: BSc 46, MSc 51; McGill Univ., Canada: PhD 62.

Career: Aligarh Muslim Univ.: Demonstrator 51–53; DAV College, Kanpur: Lecturer 53–57; McGill Univ., Canada: Demonstrator and Teaching Fellow 57–61; Univ. of Toronto, Canada, Dept of Zoology: Res. Assoc. 61–62; Univ. of Rajasthan, Jaipur, Dept of Zoology: Lecturer 62–72, Assoc. Prof. 72–85, Prof. 85–88; Mosul Univ., Iraq, Dept of Zoology: Asst Prof. 68–69; Univ. of Jodhpur, Jodhpur, Dept of Zoology: Assoc. Prof. 70–71; Hubrecht Laboratory, Utrecht, Holland: Participant in the 5th International Res. Team in Embryology 65; Univ. of Montreal, Canada, Dept of Biology: CIDA NRC Vis. Res. Assoc. 71–74; UK: Vis. Sci. in INSA-Royal Soc. Exchange Programme 83; Univ. of Illinois, Urbana-Champaign, USA, Dept of Genetics and Development: Res. Sci. on Indo-American Fellowship 83–84; UGC: National Lecturer 85–86, Emeritus Fellow 88–90; Jamia Millia Islamia, New Delhi, Centre for Biosci.: UGC Vis. Prof. 92–93.

Scientific Work: Initiated studies on morphogenetic effect of vitamin A on tail and limb regeneration in amphibians; discovered that it affects limb regeneration in predictably specific way, increasing morphogenetic potency of blastema by influencing dedifferentiation of its cells so that, contrary to rule of regeneration, the regenerates are structurally complete limbs or contain some stump structures proximal to amputation level also in addition to distal parts; vitamin A can also restore regenerative ability after its loss in the limbs; but in contrast, vitamin A inhibits regeneration if given when blastema cells begin to redifferentiate.

Important Publications: **(1)** Differentiation capacities of the prospective tail somite region of the neural plate in the embryos of *Ambystoma mexaicanum* (1969) *J. Embryol. Exp. Morph.* **22**, 1–14. **(2)** Abnormal hind limb regeneration in tadpoles of the toad *Bufo andersonnii* exposed to excess of vitamin A (1978) *Folia Biol.* (*Krakow*) **26**, 1–8. **(3)** Stage dependent effects of vitamin A excess on limbs during ontogenesis and regeneration in tadpoles of the toad *Bufo melanostictus* (Schneider) (1978) *Ind. J. Exp. Biol.* **16**, 438–445. **(4)** Stage dependent effects of retinoic acid on regenerating urodele limbs (1985) *Roux's Arch. Dev. Biol.* **194**, 355–363. **(5)** Background to work on retinoids and amphibian limb regeneration: Studies on anuran tadpoles – a retrospect (1996) *J. Biosci.* **21**, 273–297.

Memberships: Founder Member: Indian Soc. of Developmental Biologists • Fellow: NASI 79 • Member: Board of International Soc. of Developmental Biologists 85–89.

Awards & Distinctions: Swami Pranavanand Sci. Award 87 • Sci. Medal of Distinction 2004, Purdue University • Experts Committee of IGNOU for Biology Syllabi.

Nigam, Swami Dayal*

Elected: 1975
Specialization: Applied Mathematics
Date and Place of Birth: 7 May 1924, Agra
Spouse and Children: Savitri; one s (Rakesh)
Last Address: 266, Kapaleeswara Nagar, Neelangarai, Chennai 600 041, India
* **Deceased:** 3 May 2009

Education: Univ. of Agra: PhD.

Career: Indian Inst. of Technol., Madras, Dept of Mathematics.

Scientific Work: Made significant contributions to fluid mechanics, biomechanics, elasticity and boundary layer theory. Extended Howarth's treatment of boundary layer on a rotating sphere and established the existence of radial inflow from the pole to a latitude of 0 –54°45′ and outflow between this latitude and the equator. Results confirmed Howarth conjectures better than the approximate solution earlier given by Howarth.

Important Publications: **(1)** Note on the boundary layer on a rotating sphere (1954) *Z. Angew Math. Physik* **5**, 151–55.

Nilakantan, P*

Elected: 1953
Specialization: Crystal Magnetism
Date and Place of Birth: 19 April 1910
Last Address: National Aeronautical Laboratory, 2/1, Palace Road, Bangalore 560 001, India
***Deceased:** 18 April 1964

Education: Madras Univ.: BA 30, DSc 40; BHU: MSc; California Inst. of Technol., USA: MSc 42.

Career: IISc, Bangalore: Res. Scholar 35–37, Lab. & Res. Asst 37–41; Sr Lecturer 44; Co-operative Wind Tunnel Project, Caltech, USA: Res. Engineer 42–43; Hughes Aircraft Corporation, USA: Sr Aerodynamicist 43–44; Civil Aviation Directorate of the Govt of India: Sci. Asst 44–46, Sci. Offr 46–48, Dy Dir 48; Birla College of Sc., Commerce & Pharmacy, Pilani: Principal; Ministry of Defence, New Delhi, Govt of India: Jt Dir of Tech. Development (Air) & Production; NAL, Bangalore: Dir 58–64.

Scientific Work: Studied the impact of positive rays of hydrogen on glass and quartz plates, electron diffraction; diffuses efficiency in compressible flow. Constructed the discharge tubes and all the glass apparatus including pressure gauges, manometers and mercury vapour diffusion pumps of the Waran type. With C V Raman, published papers on magnetism and X-rays. At Caltech, did experimental work on the aerodynamics design of the diffuser and the working section of the new high speed wind tunnel. Also worked on design problems relating to control and stability.

Memberships: Member: Sigma Xi • Fellow: London Institute of Physics.

Nitsure, Nitin

Elected: 2001
Position: Prof., TIFR, Mumbai
Specialization: Algebraic Geometry
Date and Place of Birth: 9 Nov 1957; Satara
Parents: Yeshwant and Sujala
Spouse: Rupa Rege
Address: School of Mathematics, Tata Institute of Fundamental Research, Homi Bhabha Road,
Mumbai 400 005, India
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Education: Univ of Poona: MSc 80; Univ. of Bombay: PhD 86.

Career: Univ of Oxford, INSA Royal Soc.: Vis. Sci. 87–88; IMSc, Madras: Vis. Sci 84; TIFR, School of Math.: Prof.

Scientific Work: Constructed moduli spaces for Hitchin pairs, logarithmic connections and regular holonomic *D* modules. Calculated certain cohomology groups for moduli spaces of bundles and parabolic bundles on compact Riemann surfaces. Determined (jointly with Holla) the characteristic classes for general orthogonal groups and quadric bundles, and studied their behaviour under degenerations.

Important Publications: **(1)** Moduli of regular holonomic D-modules with natural parabolic stability. Moduli spaces and arithmetic geometry (2006) *Adv. Stud. Pure Math.* **45**, 189–221. **(2)** Representability of *Hom implies flatness* (2004) *Proc. Indian Acad. Sci. Math. Sci.* **114**, 1, 7–14. **(3)** Topology of quadric bundles (2001) *Int. J. Math.* **12**, 9, 1005–1047. **(4)** Moduli of semistable logarithmic connections (1993) *J. Amer. Math. Soc.* **6**, 3, 597–609. **(5)** Moduli space of semistable pairs on a curve (1991) *Proc. London Math. Soc.* **3**, 62, 2, 275–300.

Awards & Distinctions: IASc Assoc. 89–92.

Nityanand, Soniya

Elected: 2009
Position: Prof. Head, Dept of Hematology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow
Specialization: Medicine, Immunology; Hematology
Date and Place of Birth: 6 September 1962; Lucknow
Parents: Nityanand
Spouse and Children: Sharad Misra; one *d* (Myra)
Address: Department. of Hematology, Sanjay Gandhi Post Graduate Institute of Medical Sciences,
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email: soniya@sgpgi.ac.in; soniya_nityanda@yahoo.co.in

Education: Univ. of Lucknow: MBBS 85; MD 89; Karolinska Inst., Stockholm, PhD 96.

Career: KG Medical College, Lucknow: Chief Resident 89–90, Asst Prof. 90–93; SG PGIMS, Lucknow: Sr Resident 90, Asst Prof. 93–98, Assoc. Prof. 98–2002, Addl Prof. 2002–03, Prof. and Head of Hematology Dept 2003–. Karolinska Hospital, Karolinska Inst., Stockholm, Sweden 91–92, 93–96; BMT Training at Karolinska and Huddinge Hospitals 97–98.

Scientific Work: Propounded a hypothesis on the immunopathogenesis of Takayasu's arthritis (TA). TA patients have higher numbers of heat shock protein (HSP) 65/60 reactive CD4+ and gamma delta T-cells, with selective expansion of V delta 1 cells, and anti-aortic endothelial cell antibodies (AAECA) directed to 60–65 kD endothelial antigens indicating HSP 65/60 to be a putative antigen triggering autoimmunity. Gamma delta T-cells induce cytotoxicity and AAECA induce apoptosis of aortic endothelial cells. There is a key role of TNF-alpha, IL–2, IL–4, IL–8 and IL–10 cytokines. An immunosuppressive protocol, which is safe and halts progression of angiographic lesions on a year of follow up, has been evolved. Bone marrow of aplastic anaemia patients has increased numbers of apoptotic progenitor cells and anti-haematopoietic cytokines. ATG produces a haematological remission via induction of apoptosis of T cells through Fas-FasL and TNF pathways. Demonstrated importance of chimerism studies in monitoring of patients after bone marrow transplantation. Established technology for culture and characterization of human bone marrow derived mesenchymal stem cells and multipotent adult progenitor cells, for their use in cell-based therapy.

Important Publications: **(1)** Reactivity of gamma delta T-cells to human 60-kd head shock protein and their cytotoxicity to aortic-endothelial cells in Takayasu's arthritis (2007) *Arthritis Rheum.* **56**, 8, 2798–802. **(2)** Antigenic targets and pathogenecity of anti-aortic endothelial cell antibodies in Takayasu's arteritis (2006) *Arthritis*

Rheumat. **54**, 7, 2326–33. **(3)** T-cell receptor repertoire of circulating gamma delta T-cells in Takayasu's arthritis (2006) *Clin. Immunol.* **118**, 2–3, 243–249. **(4)** Massive apoptosis of bone marrow cells in aplastic anemia (2002) *Br. J. Hematology* **117**, 4, 993–994, 2002. **(5)** Circulating immune complexes in 50 year old men as a strong and independent risk factor for myocardial infarction (2000) *Circulation* **102**, 21, 2576–81.

Memberships: Fellow: NASI 2006.

Awards & Distinctions: Rajib Goel Young Scientist Award • Pratima & Sucharu Stree Shakti Award for the Best Woman Scientist 2004 • DBT National Biosciences Career Award • INSA Young Scientist Award.

Nityananda, Rajaram

Elected: 1986
Position: Centre Dir, NCRA, Pune
Specialization: Astronomical Optics; Statistical problems in Physics and Astronomy
Date and Place of Birth: 19 Feburary 1948; Mumbai, Maharashtra
Parents: Ramsubba Nityananda and Sarasvati
Spouse and Children: Usha; two *d* (Sneha, Poorva)
Address:National Centre for Radio Astrophysics, Ganeshkhind, Pune 411 007, India
Tel. (020) 2569 6105, 2571 9000–9111 (O), (020) 2569 1632 (R), Mobile: 9823896933
email: rajaram@ncra.tifr.res.in, rajaram.nityananda@gmail.com

Education: Madras Univ.: BSc 67; IIT Madras: MSc 69; Bangalore Univ.: PhD 77.

Career: NAL, Bangalore, Materials Sc. Dn: Res. Scholar 69–75; RRI, Bangalore: Sci. 75–2000; NCRA-TIFR, Pune: Prof. and Centre Dir, 2000–.

Scientific Work: Explored, with Ramaseshan, the parallels between magnetic neutron scattering and optical effects in twisted structures (e.g liquid crystals), leading to experiments at Bangalore (anomalous transmission) and Argonne (magnetic neutron diffraction). With Narayan, worked on the maximum entropy method of image reconstruction in astronomy and crystallography; and on the ejection of matter by radiation forces from funnels in thick accretion discs. Suggested the application of Fermat's principle to gravitational lensing, geometrizing the calculation of images and time delays; worked with Samuel on Fermat's principle in general relativity; gave a direct geometric proof of the impossibility of a global continuous phase convention for polarised light; confirmed quantitatively the connection between Pancharatnam's phase and Berry's geometric phase suggested by Ramaseshan, and applied it to radio interferometry with Bhatnagar; calculated, with Ranganath, the force between anisotropic planar defects in nematics as a scale anomaly. Worked with Sridhar on exact time-dependent models of stellar systems and with Padmanabhan on scaling laws for nonlinear gravitational clustering in cosmology; worked with Rau & Pen on applying linear algebra techniques to calibration & editing of radioastronomial data.

Important Publications: **(1)** Anomalous transmission in absorbing cholestric liquid crystals (1975) *Pramana – J. Phys. Suppl.* **1**, 325. **(2)** Impossibility of a continuous phase convention for polarised light (1979) *Pramana – J. Phys.* **12**, 257. **(3)** The interference of polarised light as an early example of Berry's phase (1986) *Curr Sci.* **55**, 1225. **(4)** Disclinations and their radial force of interaction in elastically anisotropic nematic liquid crystals (1979)

Proc. Intl Conf. Liquid Crystals, p. 205, Bangalore, ed. S Chandrasekhar (Heyden 1980). **(5)** Maximum entropy image restoration in astronomy (1986) *Ann. Rev. Astron. Astrophys.* **24**, 127.

Memberships: Fellow: INSA 98: NASI 2000.

Nori, Madhav Vithal

Elected: 1987
Position: Prof., Dept of Mathematics, Univ. of Chicago, USA
Specialization: Algebraic Geometry
Date and Place of Birth: 14 December 1949; Baroda, Gujarat
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Education: Univ. of Bombay: BSc 69, PhD 81; Univ. of California, USA: MA 72.

Career: TIFR, Bombay: School of Mathematics: Res. Asst 72–74, Res. Fellow 74–76, Fellow 76–82, Reader 82–85, Assoc. Prof. 85–89, Univ. of Chicago, USA, Dept of Maths: Prof. 89–, Vis. Prof. 93.

Scientific Work: Demonstrated the existence of a nontrivial Griffith's group which is not detectable by the intermediate Jacobian. Contribution to Zariski's conjecture yielded much more than the conjecture itself. Got two new proofs of this conjecture and proved the sharpest possible generalization to surfaces other than the projective plane. Another important work relates to the homological and algebraic equivalence of cycles. Contribution to the theory of algebraic groups is highly original.

Memberships: Fellow: INSA 88.

Awards & Distinctions: IASc Assoc. 83–86 • INSA Young Scientist Award 80.

Notani, Nihal Kishinchand*

Elected: 1974
Specialization: Plant Genetics; Molecular Genetics; Radiobiology
Date and Place of Birth: 21 January 1930; Hyderabad, Sindh (now Pakistan)
Spouse and Children: Perin; one *s* (Ranjit)
Last Address: Biomedical Group, Bhabha Atomic Research Centre, Bombay 400 085, India
***Deceased:** 18 April 1994

Education: Univ. of Bombay: BSc 50; Univ. of Maryland, USA: MS 55; Univ. of Purdue, USA: PhD 57.

Career: Univ. of Pennsylvania, USA: Res. Assoc. 64–66; Univ. of Tennessee, USA: Vis. Res. Prof. 71–72; Brookhaven National Lab., USA: Vis. Sci. 79–81; BARC, Bombay: Sci. Offr; Biology and Agri. Dn: Assoc. Dir and Dir of Biomedical Group 58–90, INSA Sr Sci. and CSIR Emeritus Sci. 91–94.

Scientific Work: Made important research contributions in (a) seed radiation biology; (b) somatic unstability, mutable loci, and transposable elements in maize; (c) genetic transformation in *Haemophilus influenzae*; (d) DNA repair and mutagenesis; (e) genetic transformation in plants; (f) human genetics. Has shown the mechanism of transformation in bacterium *Haemophilus influenzae* to be through integration of single-stranded segments of input DNA into the homologous regions of resident chromosome; has cloned two DNA repair genes; isolated and characterized a large, linear plasmid from *Streptomyces rhimosus*; analysed a genetically unstable region in *Streptomyces lividans*; proposed an excision mechanism for maize transposable elements; transferred 3 DNA sequences including bar gene (resistance to herbicide Bialaphos) to tobacco; obtained true-breeding transgenic (herbicide-resistant) plants.

Important Publications: **(1)** Effect of gibberellic acid on radiation stunted seedlings of maize (1960) *Int. J. Rad. Biol.* **2**, 257–259. **(2)** Effect of heavy water on radiosensitivity of maize and barley (1969) *Rad. Bot.* **9**, 61–67. **(3)** Mechanism of bacterial transformation and transfection: in *Progress in Nucleic Acid Res and Mol. Biol.* (1974) **14**, 39–100, Acad. Press, NY. **(4)** Genetic transformation of plants (1988) *Proc. Indian Acad. Sci. (Plant Sci.)* **96**, 79–112. **(5)** Heritable transformation of tobacco by *Agrobacterium*-mediated transfer of *Streptomyces*-derived herbicide resistance gene (1993) *J. Genet.* **72**, 35–42.

Memberships: Fellow: INSA 75; Maharashtra Acad. of Sciences.

Ogale, Satishchandra Balkrishna

Elected: 1992
Position: Sci. and Ramanujan National Fellow, NCL, Pune
Specialization: Nanoscience and Nanotechnology; Metal Oxide Thin Films and Heterostructures; Spintronics; Dye-Sensitized Solar Cells
Date and Place of Birth: 24 July 1953; Pune, India
Parents: Balkrishna Yashawant Ogale and Pratibha
Spouse and Children: Anjali; one s, one d
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Education: Poona Univ.: BSc 73, MSc 75, PhD 80.

Career: Univ. of Poona, Dept of Phys.: Res. Assoc. 78–79, Lecturer 79–83, Reader 83–88, Prof. 88–; Univ. of Southern California, USA: Vis. Asst Prof. 82–83, Vis. Sci. 86–87, 90; NCL Pune: Sci and Ramanujan Natl Fellow.

Scientific Work: Prominent contributions are: a new concept of laser-induced reactive quenching at liquid–solid interface for extremely rapid compound formation and quench rate enhancement; development of atomistic understanding of beam-induced interface phenomena using Mossbauer spectroscopy; development of laser ablation method for synthesis and patterning of high metal oxide films on silicon and other substrates; studies of transport in pure and magnetic impurity-doped high T_c superconducting systems; computer modelling of crystal growth from vapour phase; synthesis, science and applications of magnetic and optical nanomaterials (solar energy); structure-property relationships in metal oxide thin films and heterostructures with emphasis on magnetic materials and diluted magnetic semiconductors.

Important Publications: **(1)** On the origin of high temperature ferromagnetism in the low temperature processed Mn–Zn–O system. (2004) *Nat. Mater.* **3**, 709. **(2)** Electroresistance and electronic phase separation in mixed-valent manganites. High temperature. (2001) *Phys. Rev. Lett.* **86**, 5998. **(3)** Unusual electric field effects in $Nd_{0.7}Sr_{0.3}MnO_3$ (1996) *Phys. Rev. Lett.* **77,** 6, 1159. **(4)** Evidence for convective effects in breath figure formation on volatile fluid surfaces (1996) *Phys. Rev. Lett.* **76**, 20, 3762. **(5)** Pulsed laser reactive quenching at liquid-solid interface: Aqueous oxidation of iron (1987) *Phys. Rev. Lett.* **58**, 3, 238.

Memberships: Fellow: Maharashtra Acad. of Sciences.

Awards & Distinction: INSA Young Scientist Medal 85 • IPA/DAE N S Satya Murthy Award 87 • MRSI Medal 90 • MRSI-ICSC Prize for superconductivity 92 • B M Birla Award 92 • C V Raman Prize of UGC/Hari Om Trust 94.

Owen, M*

Elected: 1934
Last Address: College of Science, Nagpur, India
***Deceased**

Education: College of Sci., Nagpur: Principal.

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Notes

1. Due to limitation of space, names of co-authors under "**Important Publications**" could not be included.
2. To make the entries as concise as possible, all years pertaining to the 20th century are abbreviated to the last two digits only; e.g. 00 refers to the year 1900. In the case of year pertaining to the 19th Century and the 21st Century, the years are written in full.
3. In the case of names of spouse and children, only the maiden names are mentioned.

Abbreviations

Acad.	Academy
Admn	Administration
AEC	Atomic Energy Commission
AFST	Association for Food Scientists and Technologists
Agri.	Agriculture
AIIMS	All India Institute of Medical Sciences
AIISc	Associate of Indian Institute of Science
AMU	Aligarh Muslim University
AP	Andhra Pradesh
Assn	Association
Assoc.	Associate
Asst	Assistant
b	Date of Birth
BARC	Bhabha Atomic Research Centre
Bd	Board
BHEL	Bharath Heavy Electricals Limited
BHU	Banaras Hindu University
Biochem.	Biochemistry
Biotech.	Biotechnology
BITS	Birla Institute of Technology and Science
BSIR	Board of Scientific and Industrial Research
CAIR	Centre for Artificial Intelligence and Robotics
Caltech	California Institute of Technology
CAT	Centre for Advanced Technology
CBIP	Central Board of Irrigation & Power
CBRI	Central Building Research Institute
CCMB	Centre for Cellular and Molecular Biology
CDRI	Central Drug Research Institute
CFTRI	Central Food Technological Research Institute
CGWB	Central Ground Water Board
Chem.	Chemistry
Chmn	Chairman
CIMAP	Central Institute of Medicinal and Aromatic Plants
CLRI	Central Leather Research Institute
CMC	Christian Medical College
CMFRI	Central Marine Fisheries Research Institute

Co.	Company
COSTED	Committee on Science & Technology in Developing Countries
CRRI	Central Road Research Institute
CSIR	Council of Scientific & Industrial Research
d	Daughter(s)
Dept	Department
Dir	Director
DMRL	Defence Metallurgical Research Laboratory
Dn	Division
DSIR	Department of Scientific & Industrial Research
DST	Department of Science and Technology
Dy	Deputy
Edn	Education
Engg	Engineering
FAO	Food and Agricultural Organization
FICCI	Federation of Indian Chambers of Commerce & Industry
FNA	Fellow of National Academy of Sciences
FRCS	Fellow of Royal College of Surgeons
FRI	Forest Research Institute
Geol.	Geology
GNDU	Guru Nanak Dev University
Govt	Government
GSI	Geological Survey of India
GTRE	Gas Turbine Research Establishment
h c	honoris causa
HAL	Hindustan Aeronautics Limited
Hon.	Honorary
Hons	Honours
IACS	Indian Association for the Cultivation of Science
IAEA	International Atomic Energy Agency
IARI	Indian Agricultural Research Institute
IAS	Institute of Advanced Studies
IASc	Indian Academy of Sciences
IAU	International Astronomical Union
ICAR	Indian Council of Agricultural Research
ICMR	Indian Council of Medical Research
ICTP	International Centre for Theoretical Physics
IEEE	Institute of Electrical & Electronic Engineers
IETE	Institution of Electronics & Telecommunication Engineers
IGCAR	Indira Gandhi Centre for Atomic Research
IIA	Indian Institute of Astrophysics
IICB	Indian Institute of Chemical Biology
IICT	Indian Institute of Chemical Technology
IISc	Indian Institute of Science
IIP	Indian Institute of Petroleum
IIT	Indian Institute of Technology
IITM	Indian Institute of Tropical Meteorology

IMD	India Meteorological Department
IMSc	Institute of Mathematical Sciences
IMT	Institute of Microbial Technology
INSA	Indian National Science Academy (1954–70 known as NIS)
Inst.	Institute
Intl	International
IPCL	Indian Petrochemical Corporation Limited
IRRI	International Rice Research Institute
ISEC	Institute for Social and Economic Change
ISI	Indian Statistical Institute
ISRO	Indian Space Research Organization
IUCAA	Inter-University Centre for Astronomy and Astrophysics
IUGC	International Union of Geodesy and Geophysics
IUPAC	International Union for Pure and Applied Chemistry
JNCASR	Jawaharlal Nehru Centre for Advanced Scientific Research
JNU	Jawaharlal Nehru University
Jr	Junior
Jt	Joint
J&K	Jammu & Kashmir
KMC	Kasturba Medical College
Lab.	Laboratory
LCA	Light Combat Aircraft
LRDE	Electronics & Radar Development Establishment
Ltd	Limited
MATSCIENCE	Institute of Mathematical Sciences
MCC	Madras Christian College
Med.	Medical
MIT	Massachusetts Institute of Technology
MP	Madhya Pradesh
MRIMMP	Mehta Research Institute for Mathematics and Mathematical Physics
NAL	National Aerospace Laboratories
NASA	National Aeronautics & Space Agency
Natl	National
NCL	National Chemical Laboratory
NCRA	National Centre for Radio Astrophysics
NEHU	North-Eastern Hill University
NGRI	National Geophysical Research Institute
NIAS	National Institute of Advanced Studies
NIH	National Institute of Health
NII	National Institute of Immunology
NIMHANS	National Institute of Mental Health and Neuro Sciences
NIN	National Institute of Nutrition
NIS	National Institute of Sciences (since 1970 known as INSA)
NIV	National Institute of Virology
NPL	National Physical Laboratory
NRC	National Research Council
NVDA	Narmada Valley Development Authority

(O)	Office
Offr	Officer
Org.	Organization
PAU	Punjab Agricultural University
Phys.	Physics
PRL	Physical Research Laboratory
Prof.	Professor
Publ.	Publication
(R)	Residence
Res.	Research
RRI	Raman Research Institute
RRL	Regional Research Laboratory
RSIC	Regional Sophisticated Instrumentation Centre
R&D	Research and Development
s	Son(s)
Sci.	Sciences/Scientific
Sc.	Science
Sec.	Section
SERC	Supercomputer Education and Research Centre
Soc.	Society
Sr	Senior
Technol.	Technology
Tel:	Telephone
TERI	Tata Energy Research Institute
TIFR	Tata Institute of Fundamental Research
TISCO	Tata Iron & Steel Company
TN	Tamil Nadu
TWAS	Third World Academy of Sciences
UAS	University of Agricultural Sciences
UCLA	University of California at Los Angeles
UGC	University Grants Commission
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Education Scientific and Cultural Organization
Univ.	University
UP	Uttar Pradesh
USEF	United States Education Foundation
Vasvik	Vividhlaxi Audyogik Samsodhan Vikas Kendra
Vis.	Visiting
WHO	World Health Organization
*	Deceased Fellow

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